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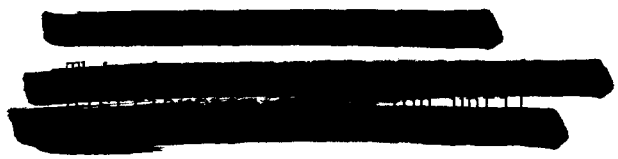

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SUMMARY

The rotational aerodynamic characteristics are discussed for a 1/8-scale model of the X-29A airplane. The effects of rotation on the aerodynamics of the basic model were determined, as well as the influence of airplane components, various control deflections and several forebody modifications. These data were measured using a rotary balance, over an angle-of-attack range of 0° to 90°, for clockwise and counter-clockwise rotations covering an $\Omega b/2V$ range of 0 to 0.4.

The model exhibited positive pitching-moment coefficients over most of the angle-of-attack range with neutral controls, commensurate with the intended relaxed longitudinal stability. The body also produced pitch up with rotation in the 25° to 60° angle-of-attack region. Both the rolling and yawing moments were damped with rotation in the normal flight regime. However, the rolling moment became propelling for all angles of attack above 25° and the yawing moment was highly autorotative at 50° angle of attack and beyond. These particular longitudinal and lateral-directional stability characteristics of the basic model could contribute significantly to any departure tendencies in this angle-of-attack region. Further, the persistence of the propelling yawing moments through 90° angle of attack results in a predicted fast, flat spin at an angle of attack greater than 80°, and 2.4 seconds per turn with neutral controls. Control deflections had little effect on the spin mode.

Three forebody modifications were investigated and were found to

improve or eliminate the adverse high angle of attack yaw characteristics that propel the flat spin, such that no spin was predicted for two of the three modified configurations with neutral controls. These forebody modifications also eliminate the pitch up that occurs with rotation.

INTRODUCTION

The X-29A forward swept wing demonstrator airplane, designed and built by Grumman Aerospace Corporation under contract to DARPA, is expected to start full-scale flight tests in 1984. In preparation for these tests, the X-29A is undergoing extensive developmental testing to define the airplane's aerodynamic characteristics. As part of this effort, rotary balance tests were conducted with a 1/8-scale model in the Langley Spin Tunnel to establish its high angle-of-attack rotational flow aerodynamic characteristics.

Data were obtained for the basic airplane with various control settings and for a successive build-up of airplane components from the body alone to the total configuration. In addition, the effects of various forebody modifications on the X-29A aerodynamic characteristics were determined. All of the data measured in this study are tabulated in the Appendix. A limited discussion of these data, as well as predicted spin modes, are also presented herein.

SYMBOLS

The units for physical quantities used herein are presented in U.S.

Customary Units. The aerodynamic forces and moments are referenced to the model body axis system.

b	wing span, ft
$\bar{c}$	mean aerodynamic chord, in.
C_L	lift-force coefficient, $\frac{\text{Lift-force}}{qS}$
C_N	normal-force coefficient, $\frac{\text{Normal force}}{qS}$
C_A	axial-force coefficient, $\frac{\text{Axial force}}{qS}$
C_Y	side-force coefficient, $\frac{\text{Side force}}{qS}$
C_l	rolling-moment coefficient, $\frac{\text{Rolling moment}}{qSb}$
C_m	pitching-moment coefficient, $\frac{\text{Pitching moment}}{qSc}$
C_n	yawing-moment coefficient, $\frac{\text{Yawing moment}}{qSb}$
I_X, I_Y, I_Z	moment of inertia about the X,Y,Z body axis, respectively, slug ft^2
$\bar{q}$	free-stream dynamic pressure, lb/ft^2
R_e	Reynolds number
S	wing area, ft^2
V	free-stream velocity, ft/sec
V_D	descent velocity, ft/sec
α	angle of attack, deg
β	angle of sideslip, deg
δ_{bf}	body flap deflection, positive for trailing edge down, deg

δ_c canard deflection, positive for trailing edge down, deg

δ_r rudder deflection, positive when trailing edge is to the left, deg

δ_{tef} trailing-edge flaperon deflection, positive for trailing edge down, deg

Ω angular velocity about spin axis, rad/sec

$\Omega b/2V$ spin coefficient, positive for clockwise spin

Abbreviations:

cg center of gravity

FS fuselage station

SR spin radius

TEU trailing edge up

TED trailing edge down

TEST EQUIPMENT

A rotary balance measures the forces and moments acting on a model while it is subjected to rotational flow conditions. Historical background for this testing technique is discussed in reference 1. A photograph and sketch of the rotary balance apparatus installed in the Langley Spin Tunnel are shown in figures 1 and 2, respectively. The system's rotary arm, which rotates about a vertical axis at the tunnel center, is supported by a horizontal boom and is driven by a motor mounted external to the test section.

A NASA six-component strain gauge balance, affixed to the bottom of the rotary balance apparatus and mounted inside the model, is used to

measure the six forces and moments acting along and about the model body axis. Controls located outside of the tunnel are used to activate motors on the rotary rig, which position the model to the desired attitude. The angle-of-attack range of the rig is 0^{o} to 90^{o}, and the sideslip angle range is $\pm 15^{o}$. Spin radius and lateral displacement motors are used to position the moment center of the balance on, or at a specific distance from, the spin axis. (This is done for each combination of angle of attack and sideslip angle.) It is customary to mount the balance to the model such that its moment center is at the location about which the aerodynamic moments are desired. Electrical currents from the balance and to the motors on the rig are conducted through slip rings. Figure 2 identifies various components of the rig and shows how the rig is positioned in angle of attack and sideslip.

The system is capable of rotating up to 90 rpm in either direction. A range of $\Omega b/2V$ values can be obtained by adjusting rotational speed and/or tunnel air flow velocity. (Static aerodynamic forces and moments are obtained when $\Omega=0$.)

The data acquisition, reduction, and presentation system is composed of a 12-channel scanner/voltmeter, a mini-computer with internal printer, a plotter, and a CRT display. This equipment permits data to be presented via on-line digital print-outs and/or graphical plots.

TEST PROCEDURES

Rotary aerodynamic data are obtained in two steps. First, the

inertial forces and moments (tares) acting on the model at different attitudes and rotational speeds must be determined. Ideally, these inertial terms would be obtained by rotating the model in a vacuum, thus eliminating all aerodynamic forces and moments. As a practical approach, this is approximated closely by enclosing the model in a sealed spherical structure, which rotates with the model without touching it, such that the air immediately surrounding the model is rotated with it. As the rig is rotated at the desired attitude and rate, the inertial forces and moments generated by the model are measured and stored on magnetic disc for later use.

The second step is to record force and moment data with the wind tunnel operating and the enclosure removed. The tares measured earlier are then subtracted from these data, leaving only the aerodynamic forces and moments, which are converted to coefficient form and stored on magnetic disc.

MODEL

A 1/8-scale model, representing the X-29A, was constructed out of balsa, plywood, and aluminum for testing in the present study. A three-view drawing of the model is shown in figure 3. Dimensional characteristics of the model are given in Table I. A photograph of the model installed on the rotary balance in the Langley Spin Tunnel is presented in figure 1.

The model was fabricated such that the wing, canard, vertical

tail, and nose strakes were all independently removable from the body so the effect of adding each component could be determined. In addition, the forebody ahead of FS 40.6 (model scale, figure 3) was made removable such that a modified forebody, as well as several strake configurations, could be tested (figure 4). The model control surfaces were movable and could be set to any specified deflection. The maximum deflections for the control surfaces were:

Rudder, deg	30 right, 30 left
Canard, deg	60 TEU, 30 TED
Flaperon, deg	10.25 TEU, 24.5 TED
Body flap, deg	30 TED

The flaperon deflections are defined with reference to the streamwise flap deflections.

TEST CONDITIONS

The tests were conducted in the spin tunnel at a tunnel velocity of 25 ft/sec, which corresponds to a Reynolds number of 144,000 based on the model mean aerodynamic chord. All the configurations were tested through an angle-of-attack range of 0° to 90°, at zero sideslip angle. Certain configurations were also tested at $\pm 10^{\circ}$ sideslip angles. The spin axis for all cases passed through the full-scale airplane cg location of $-0.076\bar{c}$. At each spin attitude, force and moment data were obtained for nominal $\Omega b/2V$ values of 0.1, 0.2, 0.3, and 0.4 in both clockwise and counter-clockwise directions, as well as for $\Omega b/2V=0$

(static value). Selected configurations were tested at an $\Omega b/2V$ value of 0.05, in addition to the nominal rotation rates.

DATA PRESENTATION

The data measured for this study are tabulated in the Appendix. Table II identifies the configurations tested and the corresponding appendix page numbers of the tabulated data. The body-axis aerodynamic coefficients (C_n, C_l, C_m, C_N, C_Y, and C_A) are presented in order of increasing $\Omega b/2V$ for each angle of attack tested. All moment data are presented for a cg position of $-0.076\bar{c}$.

Table III lists the steady-state spin modes obtained for various cg locations and control deflections. The weights and inertias used in all of the spin equilibrium calculations are presented at the bottom of Table III.

DISCUSSION OF RESULTS

Rotary balance moment data indicate the aerodynamic behavior of the airplane with rotation and thus the potential for a fully developed spin. For a clockwise rotation, a positive rolling or yawing moment is propelling, because it will increase the rotation rate, whereas a negative moment will decrease it and is, therefore, a damping moment. Conversely, for a counter-clockwise rotation, negative moments are propelling and positive moments are damping.

Basic Airplane Characteristics

The static lift and pitching moment characteristics are presented in

figure 5 for the basic X-29A model. The lift and pitching-moment coefficients reach their maximum values at approximately 40° angle of attack.

The X-29A was designed to incorporate a high degree of relaxed longitudinal static stability, as demonstrated by the positive static variation (and slope) of the pitching-moment coefficient with angle of attack (figure 5b). Rotation induces considerable additional nose-up pitching moment between 25° and 60° angle of attack, with little effect outside this range (figure 6). This rotational characteristic, in conjunction with the airplane's tendency to pitch up with sideslip in this angle-of-attack region (as observed in reference 2), will place additional demands on the pitch control system as the airplane maneuvers in this angle-of-attack region.

The model's rolling moment characteristics are very damped with rotation in the normal flight regime (up through 15° angle of attack, figure 7a). Damping decreases by 20° angle of attack, however, and the airplane is propelling in roll at all angles of attack beyond 25° (figure 7b through 7d). In the 40° to 50° angle-of-attack range, figure 7c, the configuration is very autorotative in roll. These highly propelling rolling moments occur in the angle-of-attack range immediately above the attainment of maximum lift coefficient (see figure 5a).

Reference 2 noted that a limit cycle roll oscillation was observed in this angle-of-attack region. It is suspected that the observed rolling moment characteristics contribute to this phenomenon. The propelling rolling moment characteristics that occur at very high angles of attack

(above 70°) are not as significant, however, since the yawing moment becomes the primary driving moment for any spinning motions at these angles of attack.

In the low angle-of-attack region (figure 8a), yaw damping increases with increasing angle of attack. However, beyond 30°, further increases in angle of attack produce a decrease in yaw damping. By 50° angle of attack, the airplane has become extremely autorotative in yaw (figure 8c), with autorotative yawing moments persisting through 90° (figure 8d). The existence of propelling yawing moments at the high angle of attack would indicate the possibility of a flat spin mode.

Effect of Components

The contributions of the major airframe components to the observed total airplane aerodynamic characteristics can be determined by examination of component build-up data. These data are derived by first testing the body alone, and then progressively the body-wing, body-wing-canard, body-wing-vertical, and finally the complete configuration.

Longitudinal Characteristics

The component build-up for the static pitching-moment coefficient is presented in figure 9. The body is very unstable in pitch at all angles of attack, as shown. The addition of the wing produces a significant nose-down pitch increment and increase in pitch stability. In fact, for all angles of attack less than 40°, the body-wing combination,

statically, is almost neutrally stable. (Reference 2 reveals that the body-wing combination is, indeed, neutrally stable at higher Reynolds number.) At 70° angle of attack, the body-wing exhibits the same stable pitch break as the fuselage alone. However, the nose-down increment produced by the wing results in restoring pitching moments for the body-wing configuration above 75° angle of attack.

The addition of the canard essentially defines the longitudinal stability characteristics of the total airplane. For angles of attack up to 40°, the addition of the canard produces nose-up pitching-moment increments that are larger than the stable increments produced by the addition of the wing, such that for this angle-of-attack range, the total airplane is more unstable in pitch than the body alone. While the canard also introduces an unstable increment for angles of attack greater than 40°, it is of lesser magnitude than the stable increment produced by the wing. Therefore, the total airplane is less unstable than the body alone at these angles of attack.

Component build-up plots of the pitching-moment coefficient as a function of $\Omega b/2V$ are presented in figure 10 for selected angles of attack. The body is seen to generate the pitch-up tendencies with rotation discussed earlier, ostensibly through additional rotation-induced lift on the forebody. Airplanes with lower fineness ratio forebodies and with more circular forebody cross sections (e.g. references 3 and 4), generally exhibit little significant rotational pitching moment contribution from their forebodies.

Lateral Characteristics

Component build-up plots of rolling moment coefficient are presented in figure 11 for selected angles of attack. The body alone contributes virtually no rolling moment at any angle of attack. In the normal flight regime, the addition of the wing results in a wing-body configuration that exhibits substantial roll damping that is unaffected by the presence of the canard (e.g. figure 11a). From 25° to 50° angle of attack (figures 11b through 11e), the wing-body is propelling in roll, a condition that is aggravated by the addition of the canard. The addition of the canard to the wing-body is responsible for the highly propelling rolling moments in the 40° to 50° angle-of-attack range discussed previously. Beyond 50° angle of attack, the presence of the canard no longer influences the rolling moment characteristics, and the wing-body contribution is responsible for the autorotative rolling moments through 90° angle of attack.

Directional Characteristics

The component build-up plots of yawing-moment coefficient are presented in figure 12 for selected angles of attack. The body alone contributes very little yawing moment in the normal flight regime (e.g. figure 12a). By 25° angle of attack and thereafter, however, the body is propelling (figure 12b and 12c). For angles of attack of 40° and above, the body becomes extremely autorotative and dominates the yaw characteristics of the total airplane (figure 12d through 12f). Such autorotative body yawing moments are characteristic of

airplanes having the major axis of their forebody cross section in the horizontal plane (reference 5). Such autorotative tendencies are amplified whenever there is a large moment arm between the airplane cg and forebody, such as exists for airplanes with high fineness ratio forebodies. Both the presence of the wing and the vertical tail provide damping increments for all angles of attack through 40^{o}, while the addition of the canard contributes damping between 25^{o} and 40^{o} angle of attack. The yaw damping increments introduced by the presence of the undeflected canard are considerable at these angles of attack, equalling or exceeding those exhibited by the vertical tail when not in the presence of the canard. Reference 2 also observed that the presence of the canard increased the vertical tail's yaw damping effectiveness in this angle-of-attack region, and the data in figure 12d reflects this condition. This increased effectiveness is seen by comparing the incremental yaw damping produced by adding the vertical tail to the body-wing configuration (body-wing-vertical minus body-wing) to that produced by adding the vertical tail to the body-wing-canard configuration (complete configuration minus body-wing-canard). It should be noted, however, that the effect of the canard on yaw damping in this angle-of-attack region can be completely eliminated by canard deflection, as discussed later. For angles of attack beyond 40^{o}, the airplane is autorotative in yaw, almost wholly due to the body: the yawing moments contributed by the other components are essentially inconsequential when compared to that of the body.

Control Effectiveness

The effect of control surface deflections on both the static and rotational data is summarized in figures 13 through 20.

Longitudinal

Figure 13 presents the static pitching moment effectiveness of the three pitch control devices: maximum canard, body flap, and symmetric trailing edge flaperon deflections. As expected, the canard is the most significant pitch control, with greatest pitch effectiveness occurring at 20° angle of attack (for the maximum canard deflection). Canard effectiveness decreases with angle of attack beyond 20°, yet continues to produce incremental pitching moments through 90° angle of attack. Downward deflection of the body flap also produces substantial nose-down pitching moment in the 10° through 30° angle-of-attack region, and remains effective to 75° angle of attack. Symmetric trailing edge flaperon deflection produces a limited amount of nose-down moment that gradually decreases to zero by 45° angle of attack. The control effectiveness for each of the three pitch control surfaces is not significantly affected by rotation, as demonstrated in figure 14 at 30° and 50° angles of attack.

A symmetrical canard deflection can also modify the rotational yaw characteristics of the airplane at certain angles of attack. At 35° and 40° angle of attack (figure 15), deflecting the canard to its maximum trailing-edge up position ($\delta_c = -60^{\circ}$) produces an autorotative configuration in yaw, whereas with an undeflected canard,

the yawing moment is damped. Figure 16 compares the yawing moment coefficients with the canard at both 0° and -60° deflections with canard off data. Whereas the undeflected canard contributes a damped yawing moment increment in the 35° to 40° angle-of-attack range, with the canard fully deflected the yawing moment characteristics are equivalent to those with the canard off. By 50° angle of attack, the canard deflection no longer influences the airplane's yawing moments.

These results may be dependent on the streamwise orientation of the deflected canard in this angle-of-attack range. Consequently, the implications of intermediate canard deflections on yaw damping should be assessed. Deflections other than 0° and 60° were not tested in this program.

Lateral Directional

The individual effects of full rudder and differential flaperon deflections on the static yawing moment coefficient are presented in figure 17. The rudder exhibits maximum effectiveness below 15° angle of attack. Beyond 15°, the rudder effectiveness diminishes with increasing angle of attack until no control power remains above 30°. The rotational yawing-moment characteristics are influenced by the rudder only near 30° angle of attack (figure 18), where rudder deflection results in slightly less yaw damping.

The flaperons do not produce yawing moments except in the 15° to 40° angle-of-attack range where they produce adverse yaw (figure 17). The flaperons do not influence the rotational yaw characteristics.

Substantial rolling moment is produced by full flaperon deflection, as shown in figure 19. While maximum effectiveness occurs at 10^{o} angle of attack and gradually decreases beyond 10^{o}, flaperon effectiveness is maintained through 90^{o} angle of attack. Therefore, the flaperons maintain roll control through 90^{o} angle of attack while producing no appreciable yawing moment above 40^{o}. Furthermore, the flaperon produced rolling moment increments are essentially invariant with rotation rate (e.g. figure 20 at 10^{o} angle of attack).

Predicted Spin Modes

Rotary balance aerodynamic data can be used to predict airplane steady-state spin modes for a given set of weight and inertial conditions. This is achieved by determining what conditions (i.e. angle of attack, rotation rate, etc.) if any, result in a balance of the aerodynamic and inertial moments. An outline of the method and historical background are presented in reference 1. The spin modes predicted for the X-29A using this method are shown in Tables III and IV.

Using these rotary balance data, as measured for neutral controls, and the cg in the nominal ($-0.108\bar{c}$) location, corresponding to the maneuver weight and inertias, a flat fast spin of 89^{o} angle of attack and 2.4 seconds per turn is indicated for the X-29A. Moving the cg further forward ($-0.181\bar{c}$) does not significantly alter the spin mode, as shown in Table III.

When the cg is shifted aft ($-0.076\bar{c}$), however, a high angle-of-attack pitch trim condition is predicted instead of a spin mode. The static

pitching moment data for this cg location shows that the pitching moment coefficient remains positive through 85° angle of attack. A necessary requirement for spin equilibrium is that sufficient nose-down aerodynamic pitching moment must exist to balance the nose-up inertial moment generated by the spin rotation. Because this requirement is not met at the aft cg location for this model, no spin is predicted.

Reference 5 observed that at low Reynolds number (typical of these rotary balance tests), high angle-of-attack pitching moment data may be more nose-up than those experienced at full-scale Reynolds number. This phenomenon is more pronounced on airplanes with high fineness ratio forebodies and ostensibly arises because the drag on the forebody at low Reynolds number and high angle of attack is greater than that experienced at flight Reynolds number. The higher drag, acting through the relatively long moment arm of the high fineness-ratio forebody, produces a larger nose-up moment about the cg at low Reynolds number.

Comparing unpublished static high Reynolds number ($Re=4.5\times10^6$) X-29A pitching moment data measured in the Ames 12-foot pressure tunnel with rotary balance static data ($Re=0.14\times10^6$) reveals that the lower Reynolds number pitching moment coefficients are approximately 0.45 more nose up in the flat spin angle-of-attack region. (For other fighters, with more conventional forebodies, tested on the rotary balance, pitching-moment coefficient differences were on the order of 0.15, e.g. ref. 3). To compensate for this Reynolds number effect, the rotary balance pitching-moment data were incremented by the observed difference in the static data. Spin mode predictions were repeated at the

three cg locations using the compensated pitching-moment data. As seen in Table IIIa, a flat fast spin of 87^{o} angle of attack and 2.2 seconds per turn is now predicted at the most aft ($-0.076\bar{c}$) cg location, instead of a trim point. Spins predicted for the more forward cg conditions ($-0.108\bar{c}$ and $-0.181\bar{c}$) exhibit little change from those predicted without the Reynolds number increment - only a slight reduction in spin angle of attack is observed.

For this configuration, it would appear that as long as sufficient nose-down moment exists to establish the flat spin, an additional nose-down increment of the magnitude considered herein does not significantly alter it. This can be demonstrated using the equation for pitching moment equilibrium in a steady spin, from reference 1. Assuming, as is nearly true in a flat spin, that the sideslip angle is zero, the equation becomes:

$$C_m = \text{const.}\ (\Omega b/2V)^2 \sin(2\alpha).$$

Substituting X-29A predicted spin values into the equation, it can be shown that, at the flat spin angle of attack calculated for this airplane, a 100 percent increase in nose-down pitching moment would produce only a five percent decrease in the angle of attack required for pitch equilibrium, assuming that $\Omega b/2V$ did not change. Of course, all three moment equations must remain in equilibrium for a spin to occur and, in general, a nose-down pitching moment change would also produce an increase in the rotation rate, resulting in an even smaller angle-of-attack change.

Table IIIb presents the predicted spin modes for various control deflections. In all cases, calculations were performed with the cg in the nominal location ($-0.108\bar{c}$) for the given weights and inertias. In addition, the pitching moment data were incremented to agree with the high Reynolds number data. The flat fast spin is not appreciably changed by any tested control deflection. This reflects the dominance of the body's highly autorotative yawing moments on the total airplane's aerodynamics at these angles of attack. Only the canard and flaperons, because they both remain effective through 90° angle of attack, exhibit any limited influence on the spin mode. Flaperons deflected against the spin and negative canard deflection each increase the spin rate somewhat and flaperons deflected with the spin slow the spin slightly. The spin attitude remains flat, however.

Since the influence of Reynolds number on the rotational yawing moment characteristics has not been examined, the yawing moment data was, therefore, used as measured for all spin calculations. Static tests of the X-29A have indicated Reynolds number induced differences in the high angle-of-attack yawing-moment characteristics with sideslip and, for this reason, free spinning model tests for this airplane were performed with strakes that were found to correct the observed static Reynolds number effect. The free-spinning test results indicated flat spin modes at similar angles of attack, but at slower rotation rates than those predicted from the rotary balance data.

Effect of Forebody Modifications

Because of the adverse influence of the body on the rotational characteristics of the basic airplane, several forebody modifications were tested in an attempt to identify the source of the body's aerodynamic contribution and possibly reduce its adverse nature.

While the basic airplane's nose strake demonstrated little effect on rotational yawing moment(e.g. figure 21), references 5 and 6 report that the addition of strakes in the vicinity of the forebody primary vortex separation line (approximately 40° above the forebody maximum half breadth - see figure 4) can significantly increase rotational yaw damping. Thus, one of the modifications tested consisted of rotating the basic nose strakes to the 40° radial position (V-nose strake, see figure 4). In addition, larger forebody strakes were tested in the same radial position. Finally, tests were conducted for a configuration with a forebody having a roughly triangular cross-sectional shape ahead of FS 40.6, a shape that has been previously described as anti-spin (reference 7).

All three forebody modifications eliminate the large nose-up pitching moments generated by rotation that were observed for the unmodified body in the 30° to 60° angle-of-attack region (e.g., see figures 22b and 22c). Apparently, all three modifications eliminate the rotation induced forebody lift that produces the pitch up. For angles of attack above and below this range, the forebody does not dominate the rotational pitch characteristics, and, as a result, the modifications do not influence the pitching moment in these regions (figures 22a and 22d). At low angles of

attack, as shown in figure 22a, the large forebody strakes produce a static pitching moment shift due to their increased plan area, as would be expected.

None of the forebody modifications had an influence on the rotational rolling moment characteristics, except in the 40° to 50° angle-of-attack region (figure 23). In this angle-of-attack region, all three modifications resulted in slightly less propelling rolling moments than those measured for the basic airplane.

The forebody modifications exhibit little influence on the X-29A yawing moment characteristics at low angles of attack (figure 24a). However, by 25° angle of attack (figure 24b), all three forebody modifications exhibit increased yaw damping over that of the basic airplane. By 40° angle of attack, the basic airplane has essentially lost most of its damping in yaw (figure 24c), and is extremely autorotative at 50° angle of attack (figure 24d). By contrast all three forebody modifications result in considerable yaw damping throughout this angle-of-attack region (figure 24c and 24d). The large forebody strakes exhibit the most damping of all the configurations examined in the 25° through 40° angle-of-attack range (figure 24b and 24c). At 50° angle of attack (figure 24d), the triangular forebody exhibits a large static yawing moment offset, apparently the result of asymmetric vortex shedding from the nose that is common in this angle-of-attack region (reference 5). At 70° angle of attack, figure 24e, the increased damping contributed by the small V-nose strake configuration is reduced and is eliminated by 80° angle of attack

(figure 24f). Yaw damping persists through 90° (figure 24g) for the remaining two forebody modifications and, as a result, the flat spin is eliminated for either configuration with neutral controls (Table IV). These results emphasize the importance of the forebody shape on rotary aerodynamics, particularly for high fineness ratio forebodies.

While these modifications considerably improve the yaw damping of the model over most of the high angle-of-attack range and, in two cases, eliminate the neutral control flat spin mode, they also adversely influence the static lateral-directional characteristics in the departure region. The significance of the combined static and rotational effects of such modifications on the airplane's high angle-of-attack handling qualities should be evaluated with a large-angle six degree-of-freedom simulation.

CONCLUDING REMARKS

An analysis of the low Reynolds number rotary balance data measured in the Langley Spin Tunnel has revealed the following:

The X-29A airplane incorporates a high degree of relaxed longitudinal stability, which is characterized by nose-up static pitching moments over most of the angle-of-attack range for neutral controls. In addition, rotationally induced forebody effects result in further nose-up pitching moment in the 25° to 60° angle-of-attack range. While the rolling and yawing moments are damped in the normal flight regime, the rolling moment becomes autorotative for all angles of attack above 25°, and the yawing moment is extremely autorotative at 50°

angle of attack and above due to the dominance of propelling forebody characteristics. The autorotative characteristics of the forebody produced propelling yawing moments for the total airplane beginning at 35° angle of attack, but the effect on the complete configuration was delayed by the favorable influence of the canards. This influence of the canards, however, was eliminated when the canards were deflected. These adverse longitudinal and lateral-directional characteristics would contribute to any departure tendency in this angle-of-attack region. The adverse yawing-moment characteristics that persist through 90° angle of attack are responsible for the predicted flat, fast spin of approximately 90° and 2.4 seconds per turn with neutral controls. While both the canard and the flaperon were seen to retain effectiveness through the tested angle-of-attack range, their deflection did not significantly alter the basic spin mode, a flat, fast spin being predicted for all control combinations examined.

Three forebody modifications were demonstrated to eliminate or improve the adverse high angle-of-attack yaw characteristics. These consisted of: moving the basic airplane's horizontal nose strakes to a V-position, replacing the basic airplane strakes with larger forebody strakes and replacing the elliptical cross-sectional forebody with one having a triangular cross-section. These modifications demonstrated the ability to increase the yaw damping of the basic forebody for angles of attack above 25° and to eliminate the nose-up pitching-moment increments due to rotation in the 25° to 60° angle-of-attack range. The large forebody strakes and the triangular cross-sectional forebody each

eliminated the autorotative yawing moments through 90° angle of attack, resulting in no predicted spin for neutral controls. The smaller V-nose strakes, likewise, provided yaw damping up to 70° angle of attack, but had no effect at 80° angle of attack and beyond and, therefore, no effect on the predicted spin. These forebody modifications, however, were observed to produce substantial degradations of the configuration static lateral directional stability in the angle-of-attack region about maximum lift and, thus, could adversely effect departure resistance.

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7. Niehouse, Anshal I., Klinar, Walter J., Scher, Stanley H.: Status of Spin Research for Recent Airplane Designs, NASA TR R-57, 1960.

TABLE I.- DIMENSIONAL CHARACTERISTICS OF THE 1/8-SCALE X-29A MODEL

Overall length, ft	6.0
Wing:	
Area, ft^2	2.89
Span, ft	3.4
Mean aerodynamic chord, in.	10.83
Aspect ratio	4.0
Taper ratio	0.4
Sweep of leading edge, deg	-29.27
Dihedral, deg	0
Canard:	
Area, ft^2	0.58
Span, ft	1.7
Taper ratio	0.319
Sweep of leading edge, deg	42
Aspect ratio	1.47
Vertical tail:	
Area, ft^2	0.53
Span, ft	0.84
Taper ratio	0.3
Sweep of leading edge, deg	47
Aspect ratio	2.68

TABLE II.- CONFIGURATIONS TESTED AND DATA TABULATION INDEX

Appendix Page No.	CONFIGURATION	β deg	δ_c deg	δ_{tef} (L/R) deg	δ_r deg	δ_{bf} deg
A2-A6	Body alone	0	off	off	off	off
A7-A11	Body-wing	↓	↓	0	↓	0
A12-A16	Body-wing-vertical	↓	↓	↓	0	↓
A17-A21	Body-wing-canard	↓	0	↓	off	↓
A22-A26	Basic configuration	0	↓	↓	0	↓
A27-A31	↓	+10	↓	↓	↓	↓
A32-A36	↓	-10	↓	↓	↓	↓
A37-A41	↓	0	↓	+25/+25	↓	↓
A42-A46	↓	+10	↓	↓	↓	↓
A47-A51	↓	0	-60	↓	↓	↓
A52-A56	↓	+10	↓	↓	↓	↓
A57-A62	↓	0	↓	↓	↓	+30
A63-A67	↓	+10	↓	↓	↓	↓
A68-A71	↓	0	↓	↓	-30	↓
A72-A75	↓	+10	↓	↓	↓	↓
A76-A81	↓	0	↓	-10/+25	↓	↓
A82-A87	↓	+10	↓	↓	↓	↓
A88-A93	↓	0	↓	+25/-10	+30	↓
A94-A99	↓	+10	↓	↓	↓	↓
A100-A104	↓ less flat nose strake	0	0	0	0	0
A105-A109	V-nose strake configuration	↓	↓	↓	↓	↓
A110-A113	Lg. forebody strake config.	↓	↓	↓	↓	↓
A114-A117	Triangular forebody config.	↓	↓	↓	↓	↓

TABLE III.- PREDICTED EQUILIBRIUM SPIN MODES[a] for the X-29A

a) Effect of cg, neutral controls

cg	Predicted Spin Mode - Basic Data				Predicted Spin Mode - C_m R_e Compensated[b]			
	α deg	sec/turn	$\frac{\Omega b}{2V}$	V_D ft/sec	α deg	sec/turn	$\frac{\Omega b}{2V}$	V_D ft/sec
-0.181c	87	2.1	0.16	260	85	2.2	0.14	277
-0.108c	89	2.4	0.14	261	86	2.2	0.15	260
-0.076c	No Spin - Pitch Trim				87	2.2	0.15	260

[a]Spins shown are to the right (clockwise)

[b]$\Delta C_m = -0.45$ to compensate for low R_e of test data

All spin calculations performed at a spin altitude of 30,000 ft for the following weight and inertia conditions:

Weight = 15,000 lbs

$I_{XX} = 4{,}500$ slug ft^2

$I_{YY} = 50{,}150$ slug-ft^2

$I_{ZZ} = 53{,}230$ slug-ft^2

TABLE III.- CONCLUDED

b) Effect of control deflections

CONTROL DEFLECTIONS				PREDICTED SPIN MODE[a,b]			
δ_c deg	δ_{tef} (L/R) deg	δ_r deg	δ_{bf} deg	α deg	sec/turn	$\frac{\Omega b}{2V}$	V_D ft/sec
0	0	0	0	86	2.2	0.15	260
↓	+25/+25	↓	↓	86	2.1	0.16	263
-60	↓	↓	↓	87	1.8	0.19	255
↓	↓	↓	+30	87	1.8	0.19	257
↓	↓	-30	↓	87	1.7	0.19	260
↓	-10/+25	↓	↓	88	1.6	0.21	257
↓	+25/-10	+30	↓	85	2.6	0.12	264

[a] Spins shown are to the right (clockwise)

[b] All spins are calculated with the pitching moment shifted ($\Delta C_m = -0.45$) for Reynolds number effect

All spin calculations performed at a spin altitude of 30,000 ft for the following weight and inertial conditions:

Weight = 15,000 lbs

cg = -0.108c

I_{XX} = 4,500 slug-ft^2

I_{YY} = 50,150 slug-ft^2

I_{ZZ} = 53,230 slug-ft^2

TABLE IV.- EFFECT OF X-29A FOREBODY MODIFICATIONS ON PREDICTED SPIN MODES FOR NEUTRAL CONTROLS

Configuration	Predicted Spin Mode			
	α deg	sec/turn	$\frac{\Omega b}{2V}$	V ft/sec
Basic	86	2.2	0.15	260
with V-nose strakes	86	2.2	0.15	255
with large forebody strakes	NO SPIN - Pitch trim			
with triangular forebody	NO SPIN - Pitch trim			

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L-82-1,182

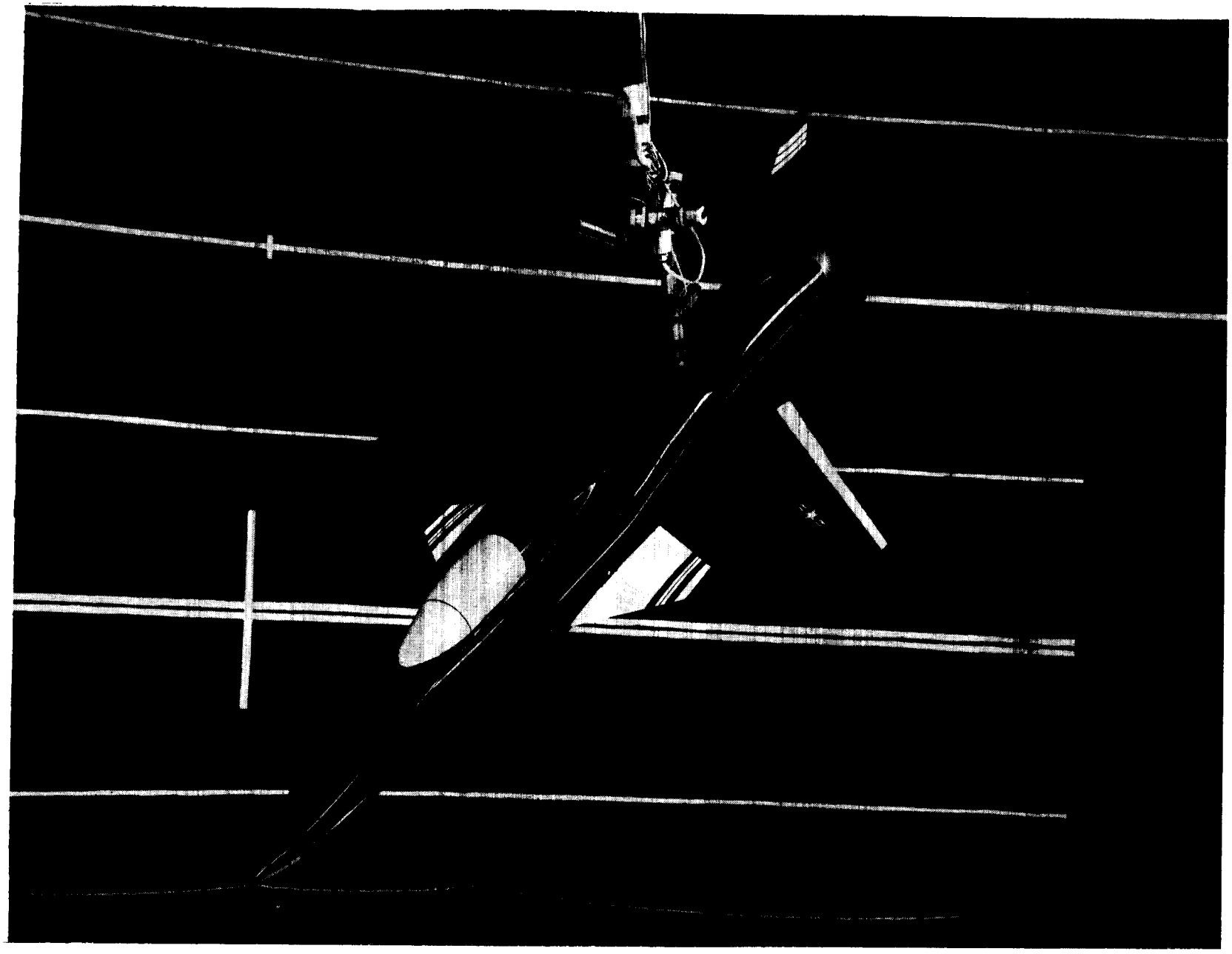
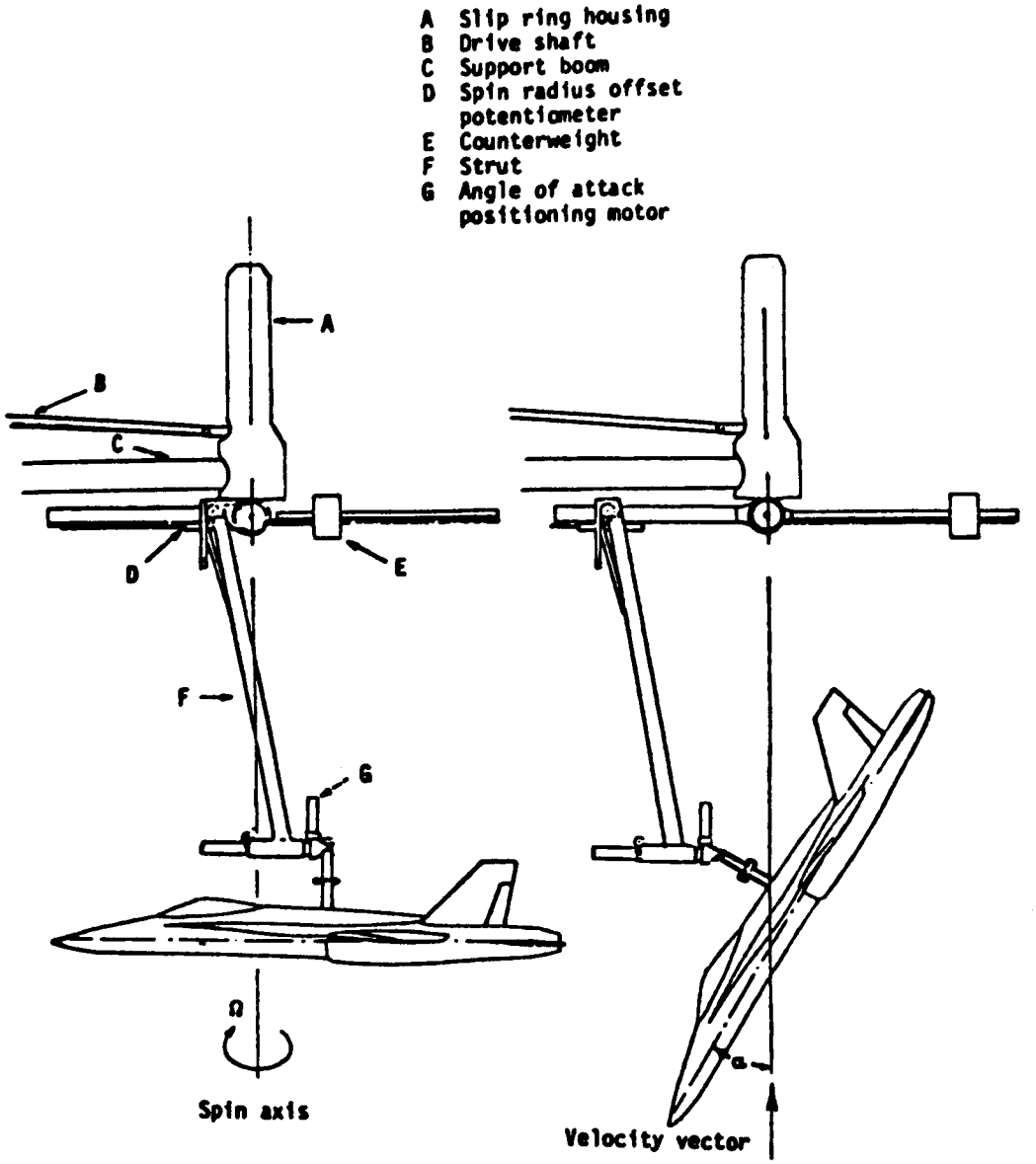
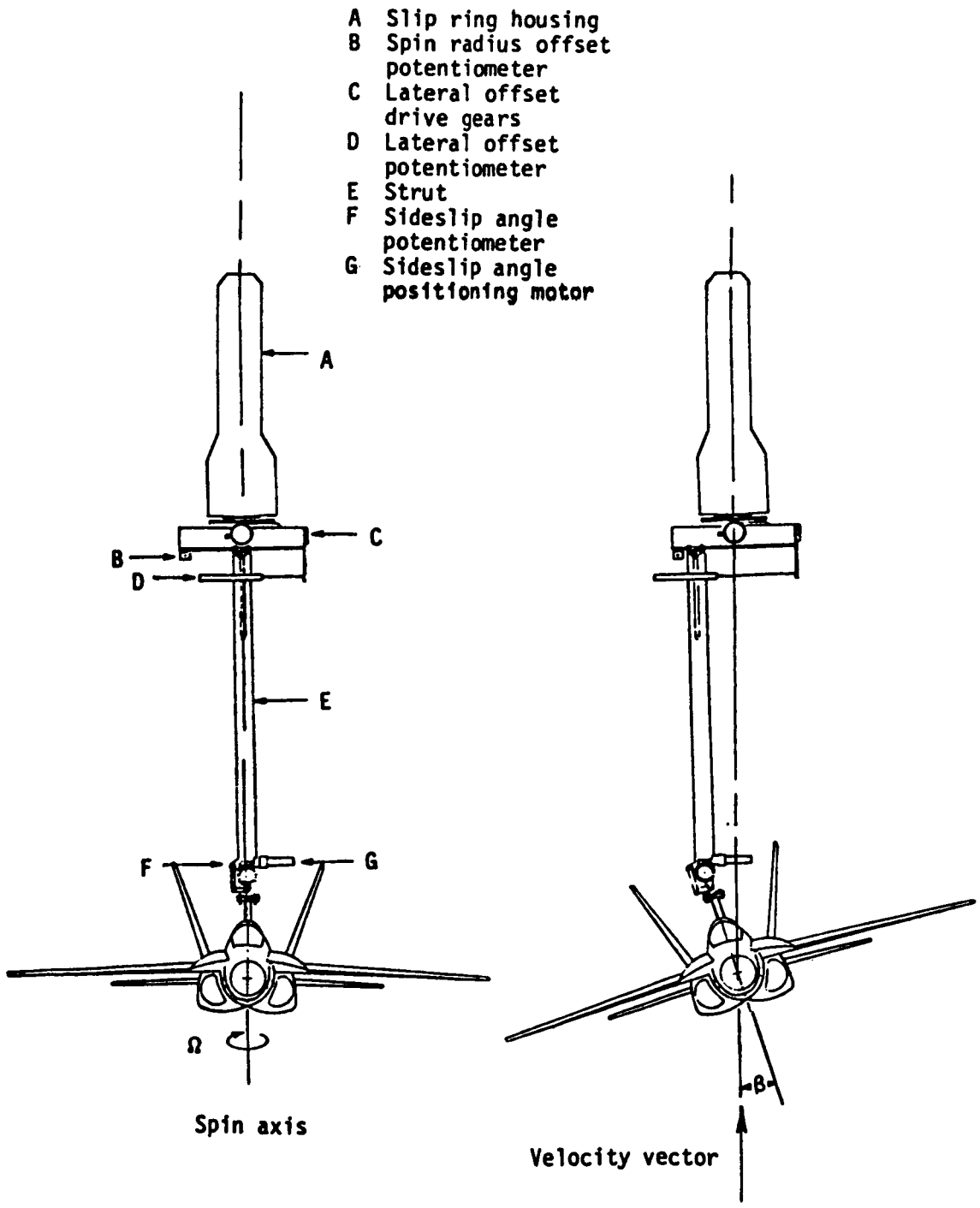


Figure 1.- Photograph of 1/8-scale model of the X-29A installed on the rotary balance.



(a) Side view of model.

Figure 2.- Sketch of rotary balance apparatus.



(b) Front view of model.

Figure 2.- Concluded.

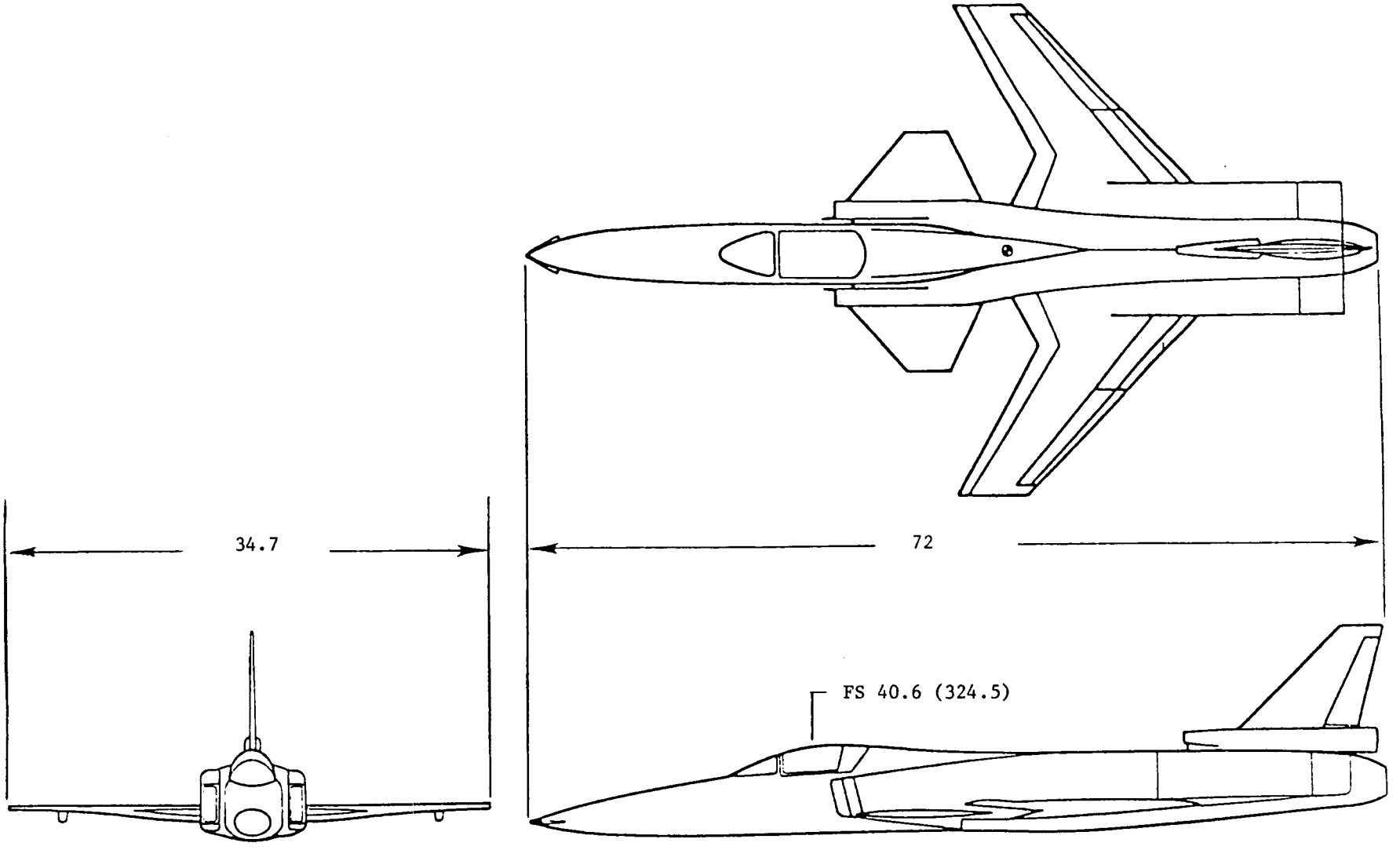
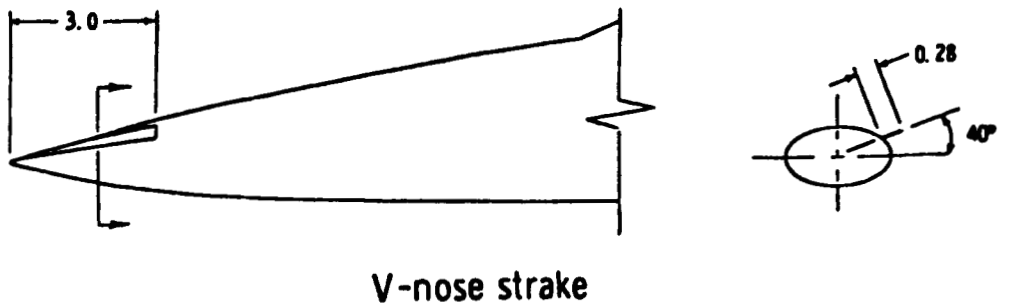
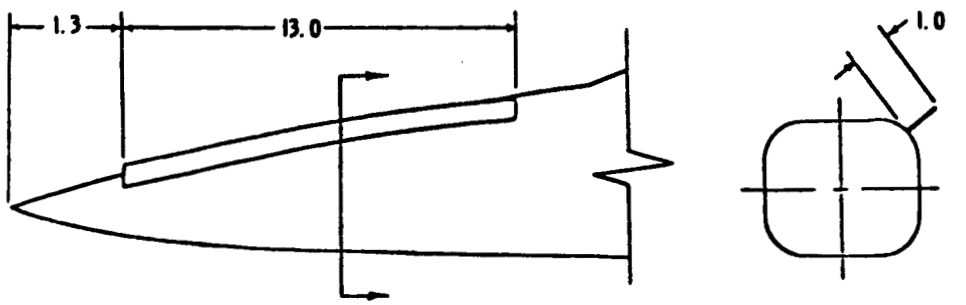


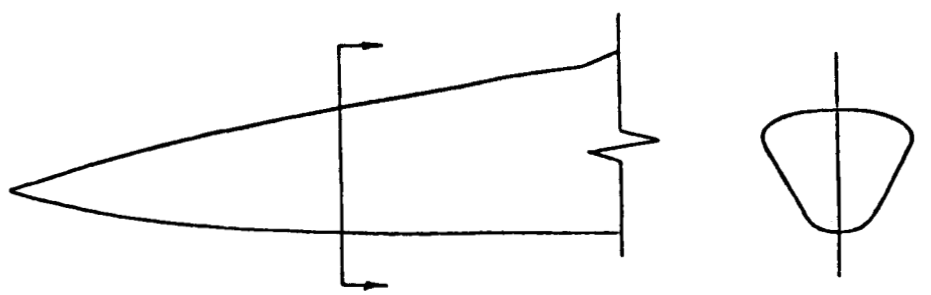
Figure 3.- Three-view drawing of 1/8-scale model. Dimensions are given in inches model scale (full scale).



V-nose strake

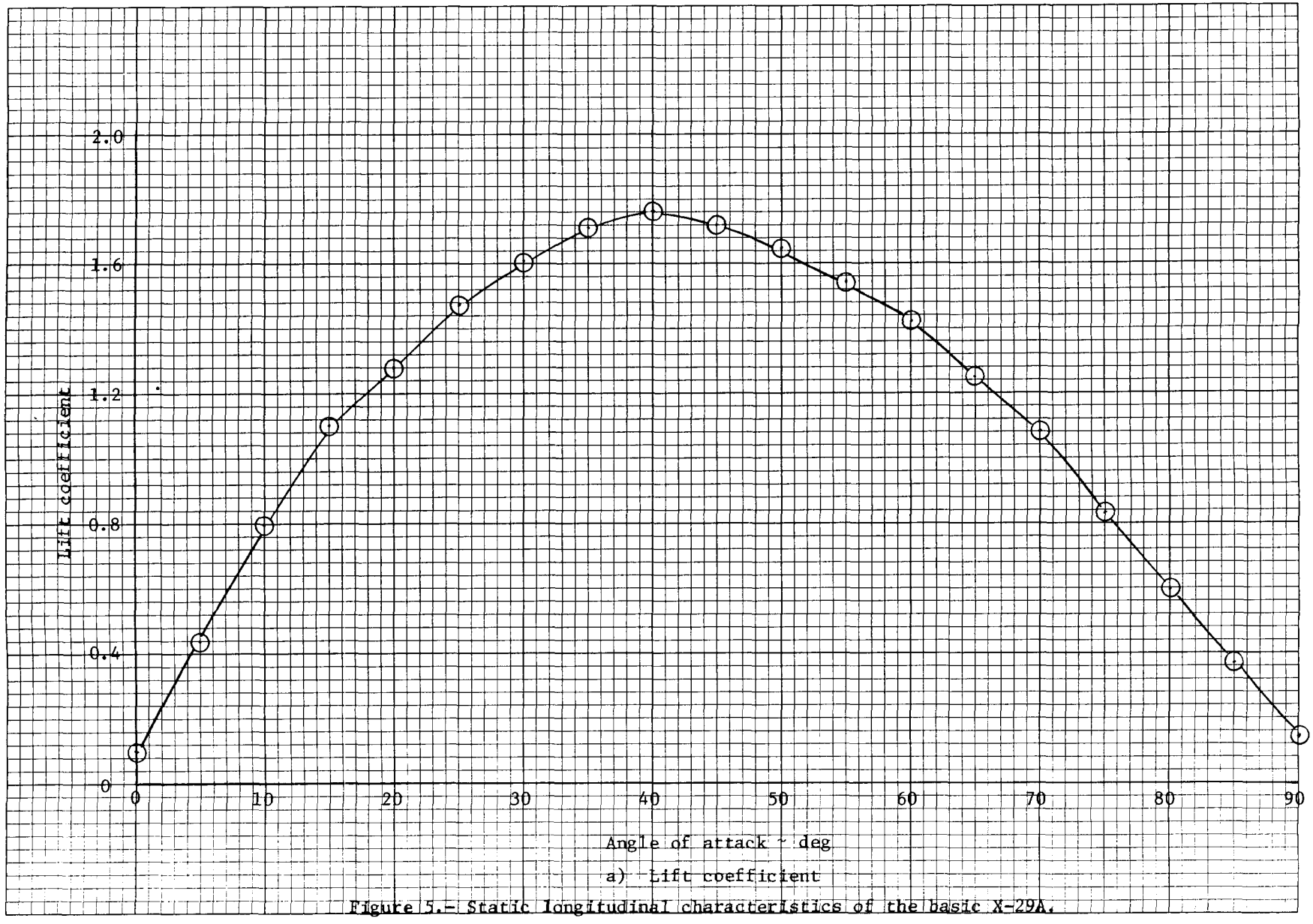


Forebody strake



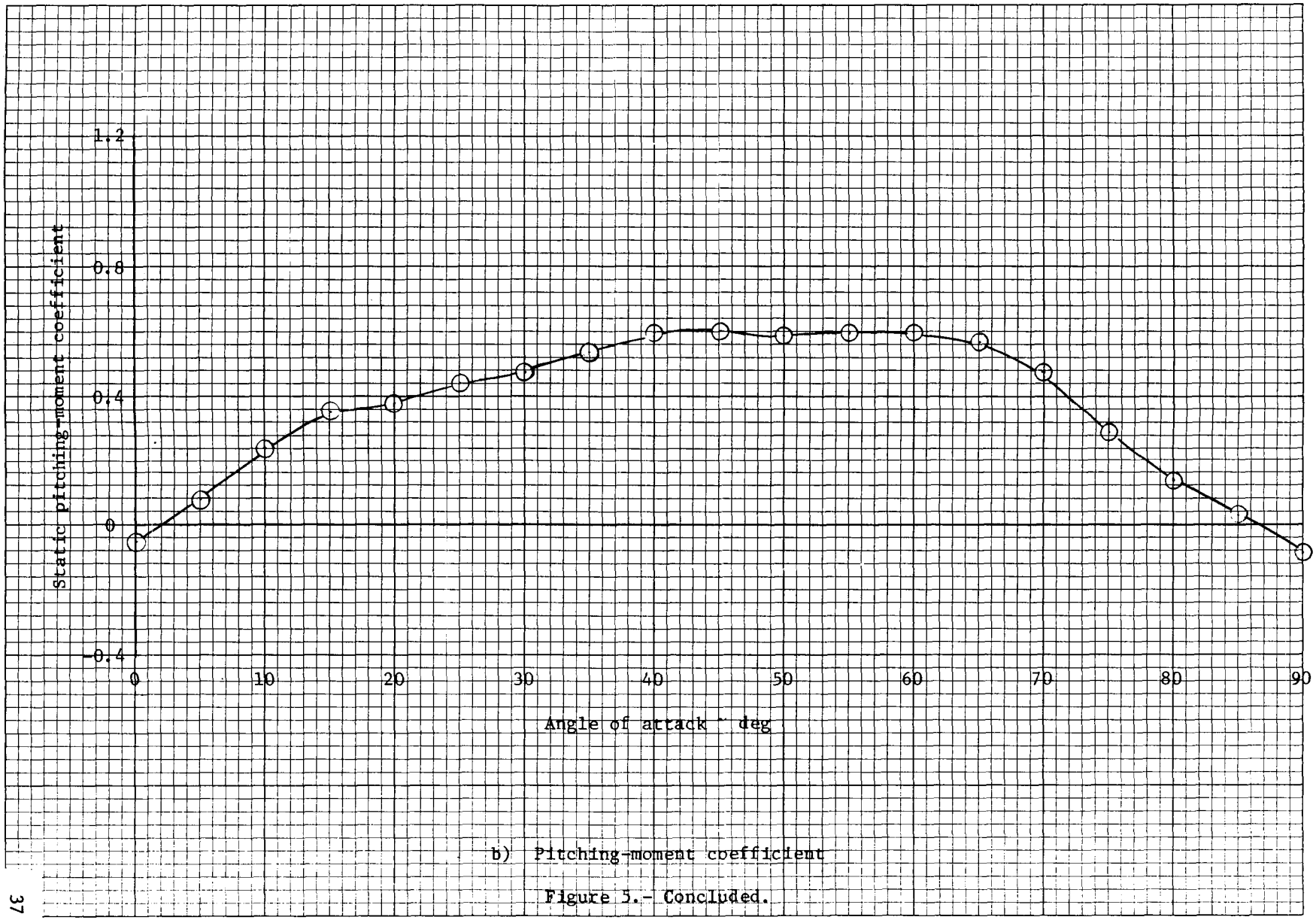
Triangular forebody

Figure 4.- Strakes and forebody modification tested. Dimensions in inches, model-scale.



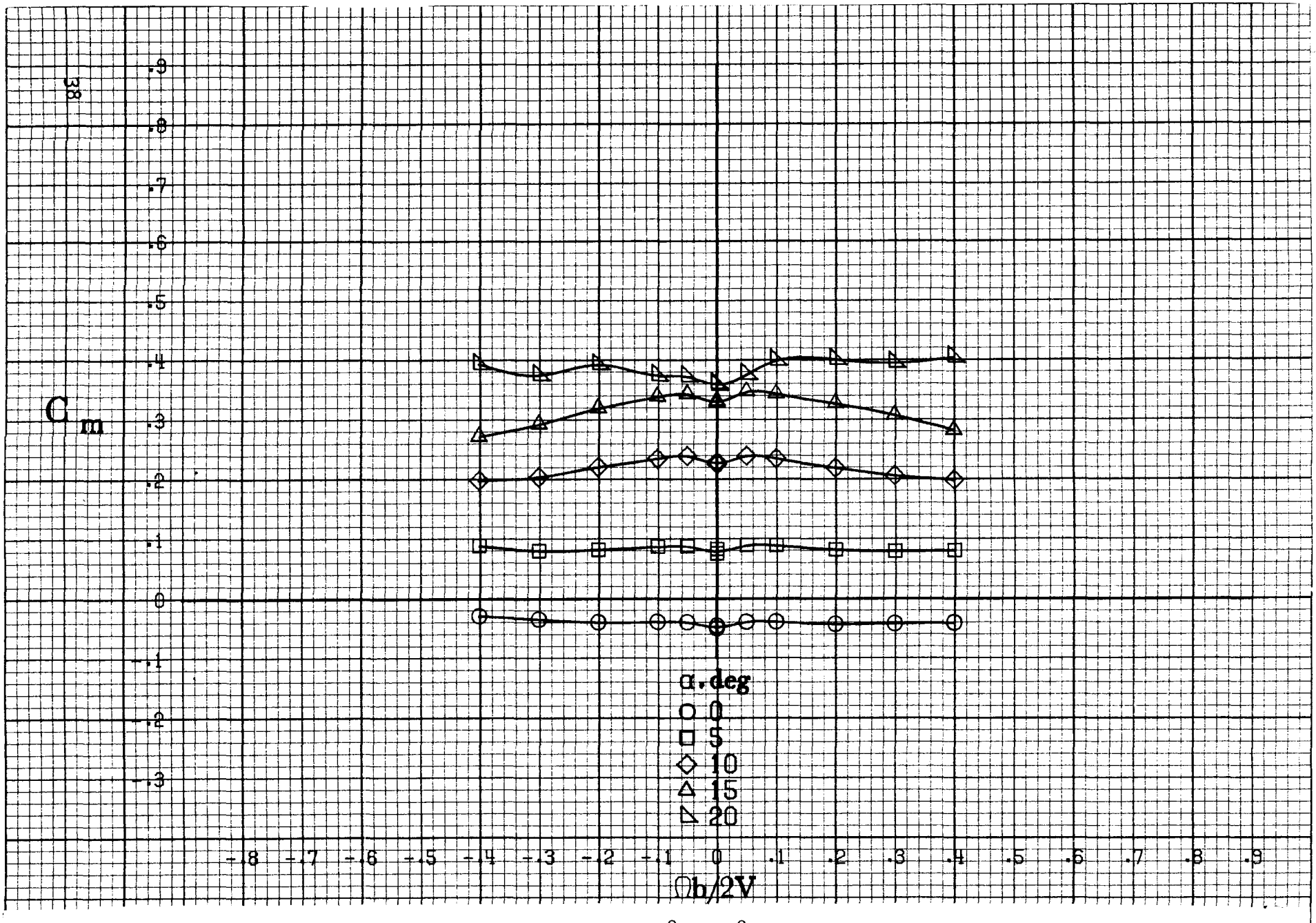
a) Lift coefficient

Figure 5.- Static longitudinal characteristics of the basic X-29A.



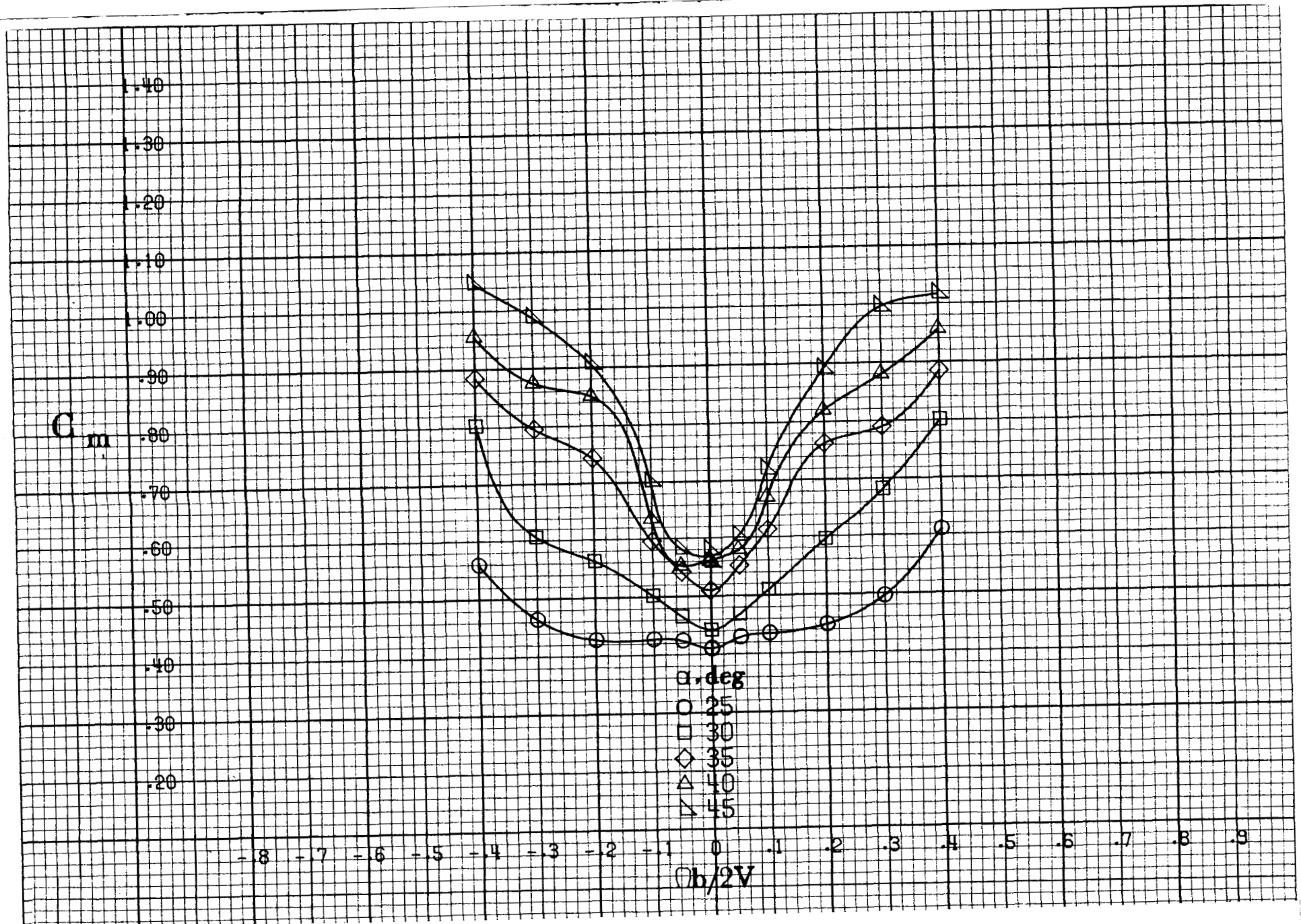
b) Pitching-moment coefficient

Figure 5.- Concluded.



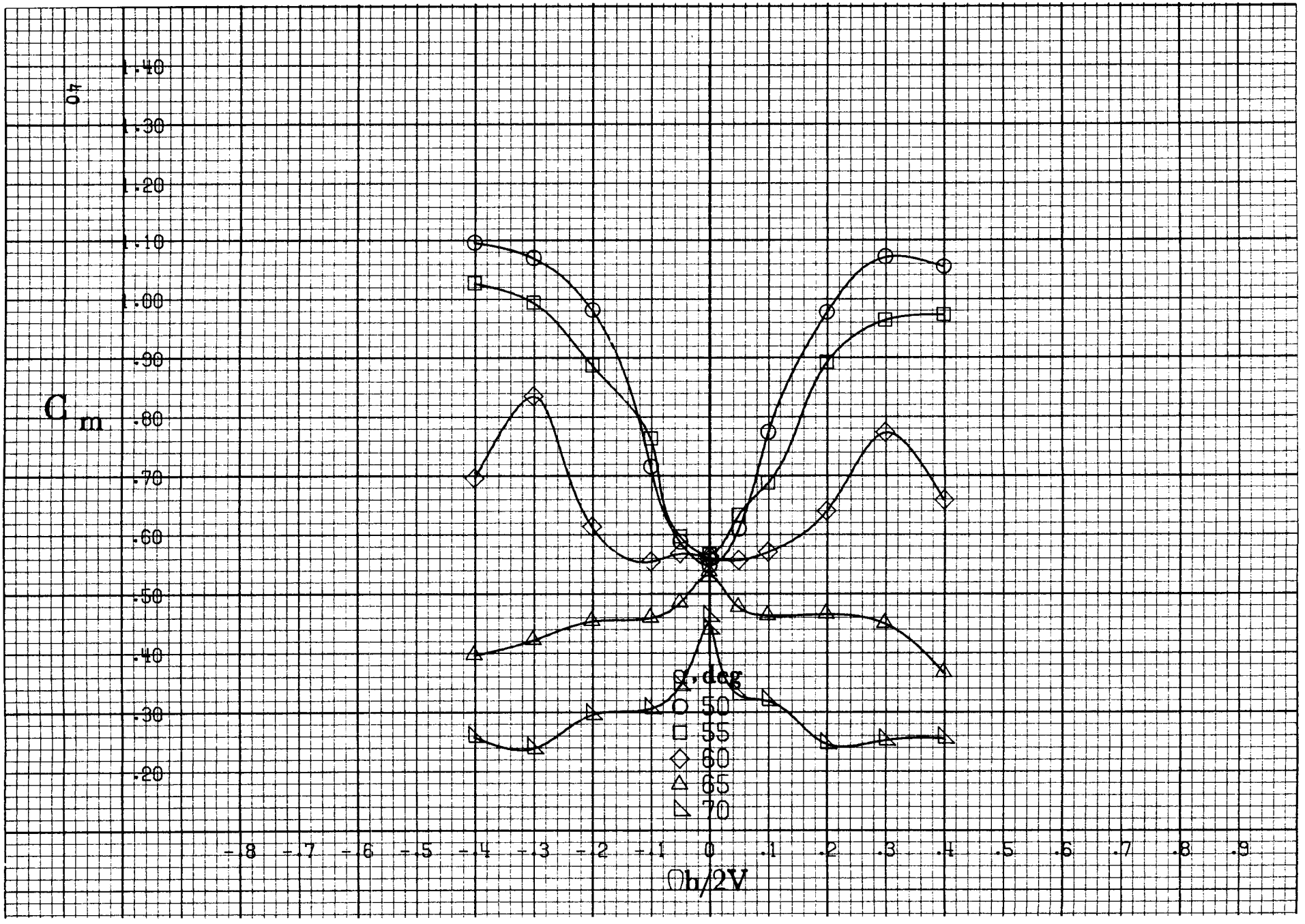
(a) $\alpha = 0^{\circ}$ to 20°

Figure 6.- Effect of rotation rate and angle of attack on pitching moment coefficient for the basic X-29A with neutral controls.



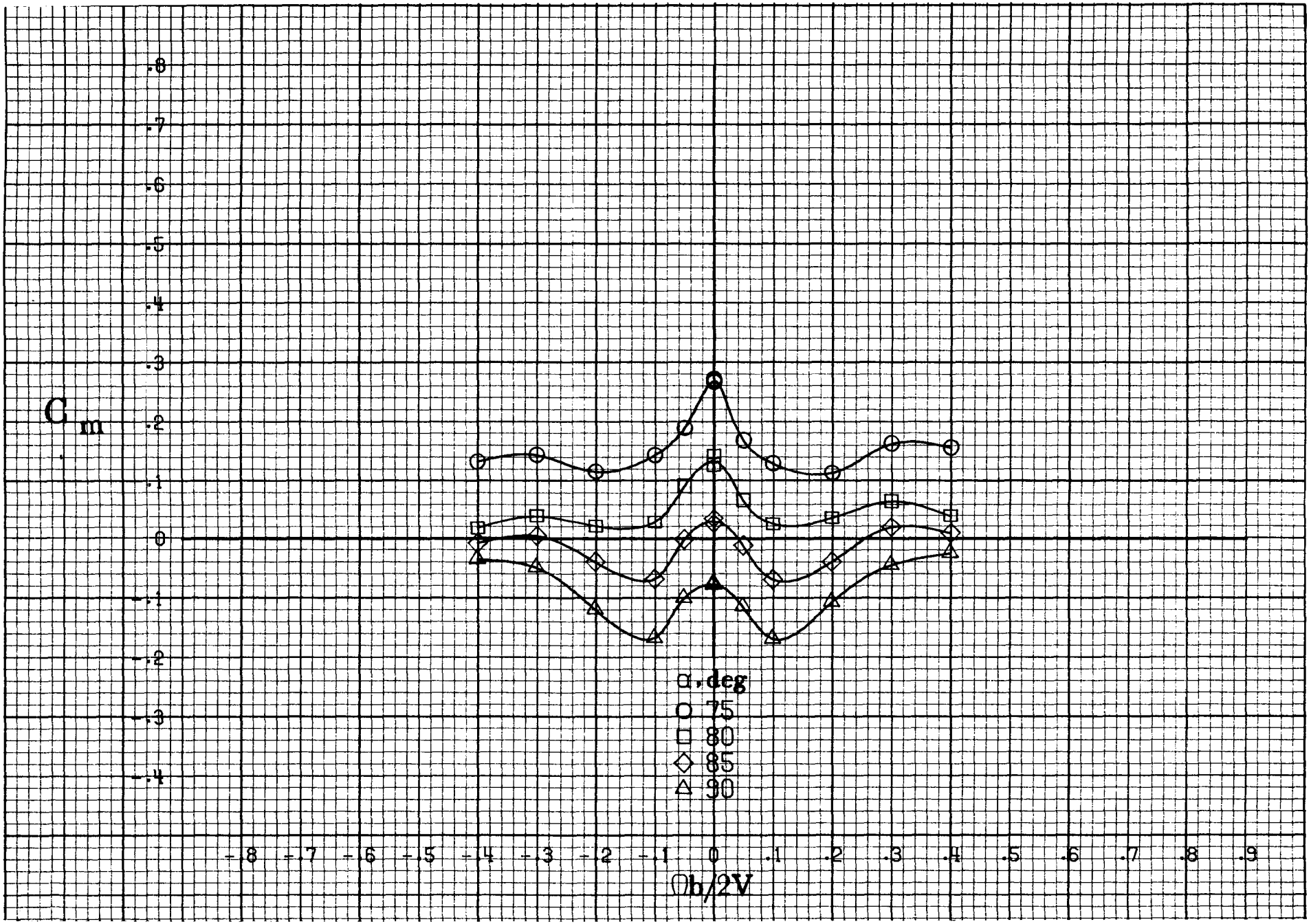
(b) $\alpha = 25^{\circ}$ to 45°

Figure 6.- Continued.



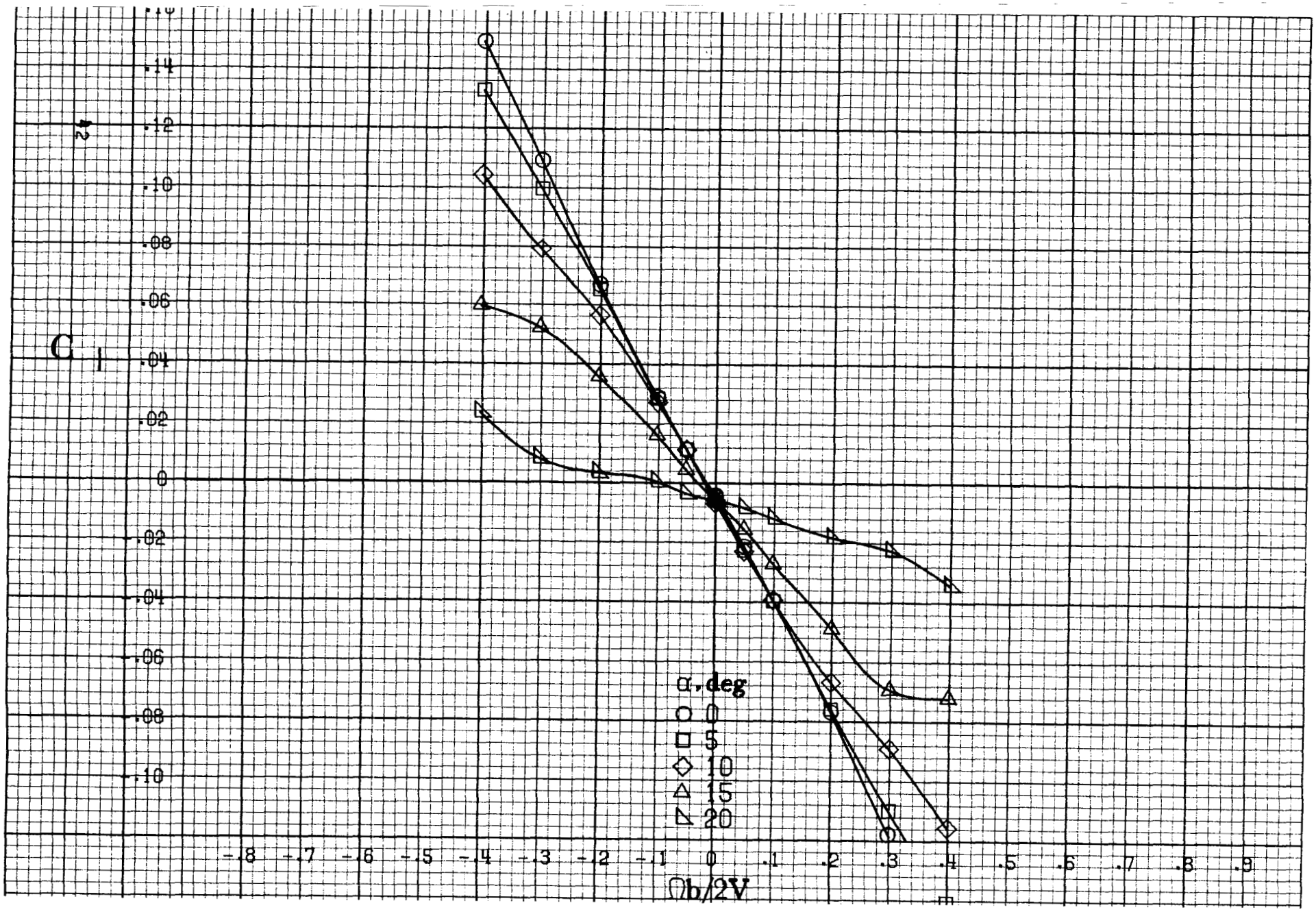
(c) $\alpha = 50^{\circ}$ to 70°

Figure 6.- Continued.



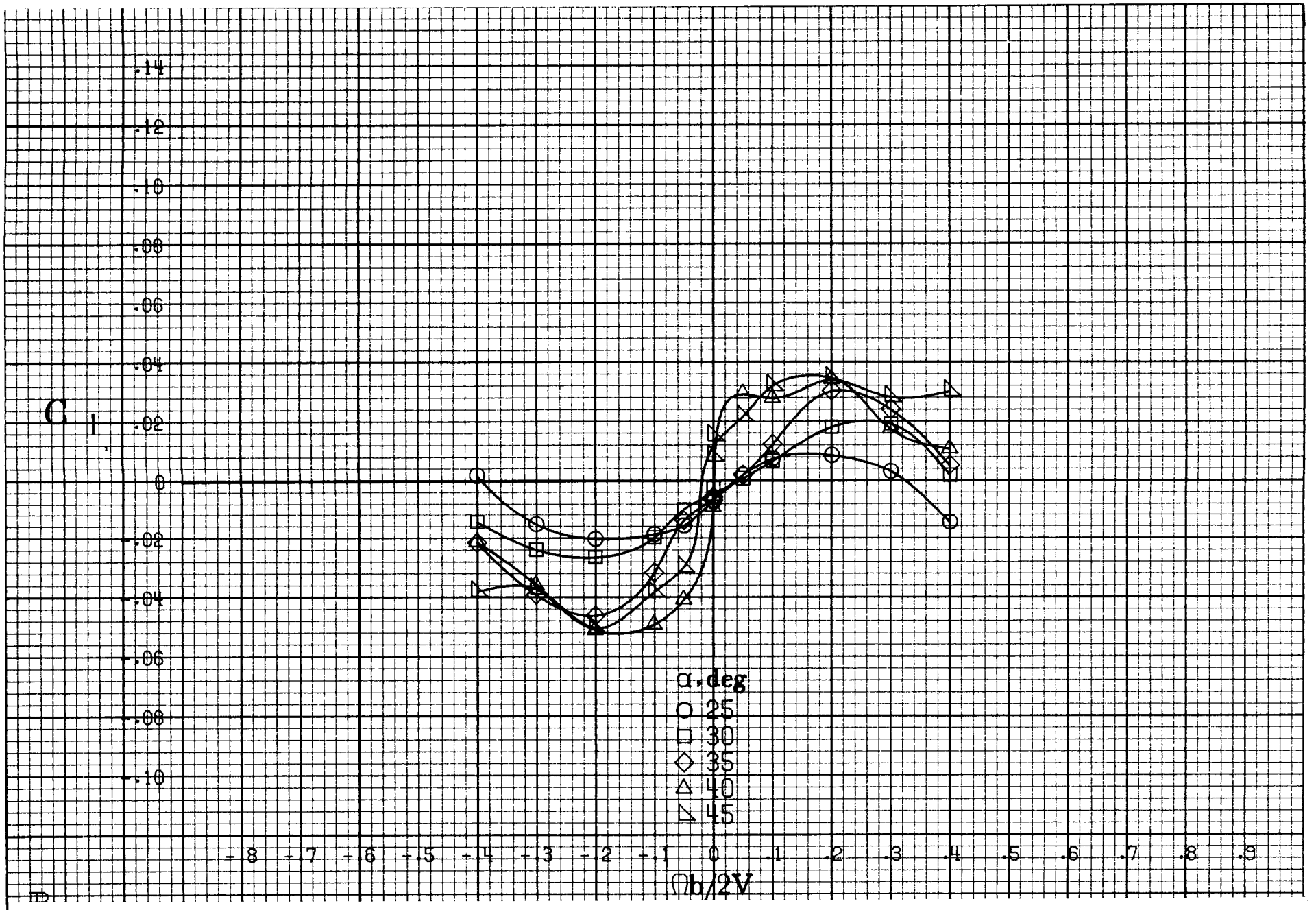
(d) $\alpha = 75^{\circ}$ to 90°

Figure 6.- Concluded.



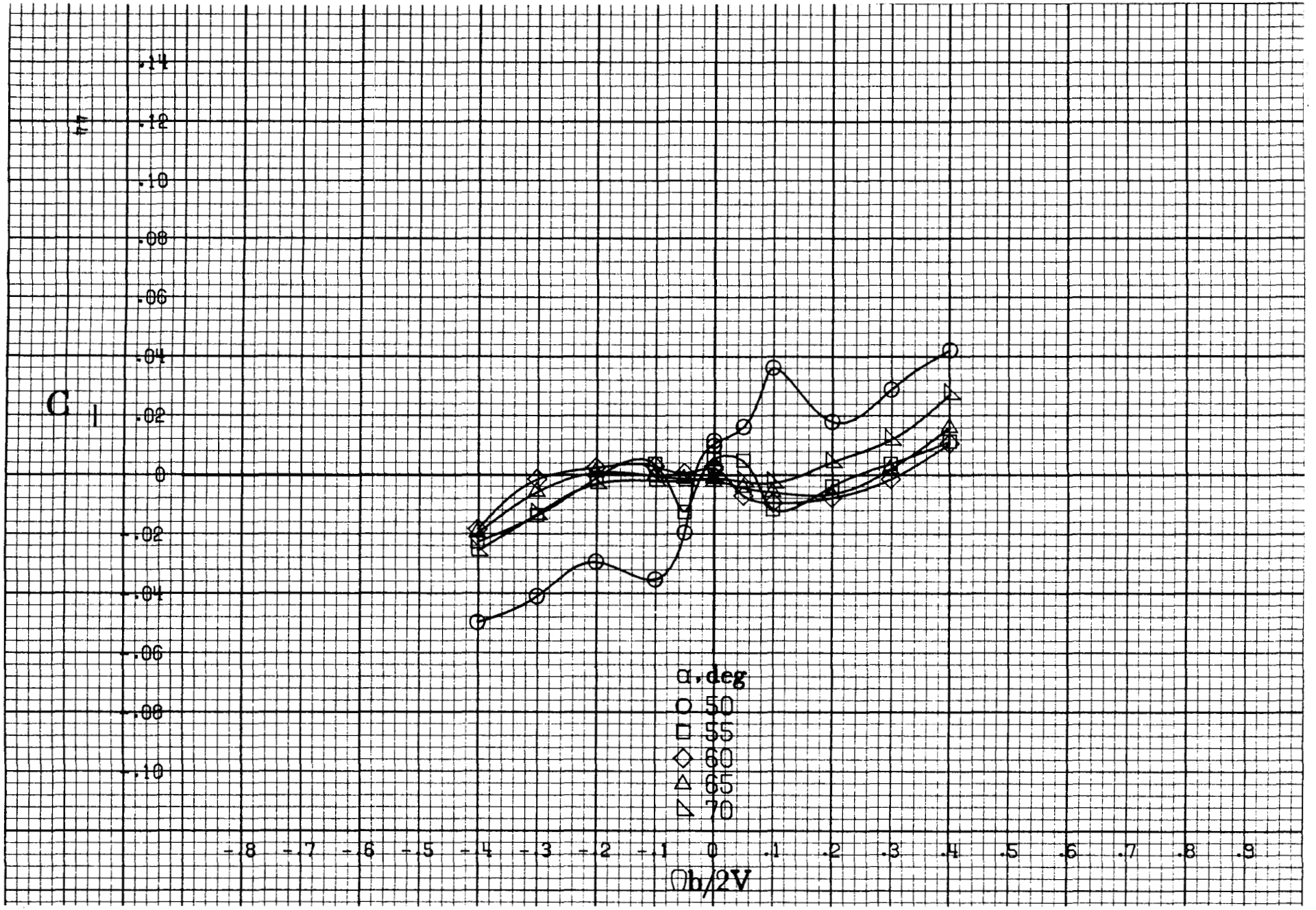
(a) $\alpha = 0^{\circ}$ to 20°

Figure 7.- Effect of rotation rate and angle of attack on rolling moment coefficient for the basic X-29A with neutral controls.



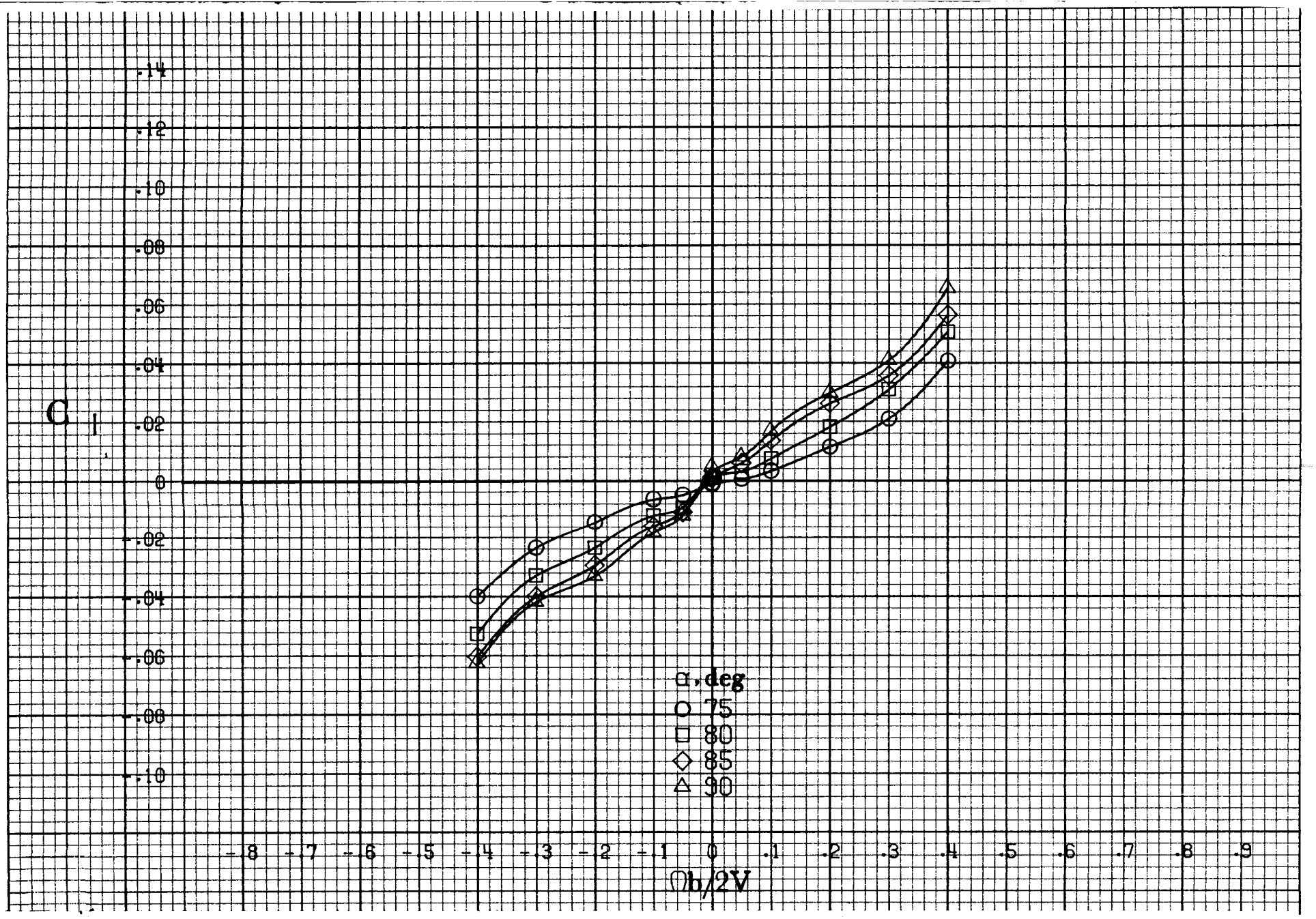
(b) $\alpha = 25^{o}$ to 45^{o}

Figure 7.- Continued.



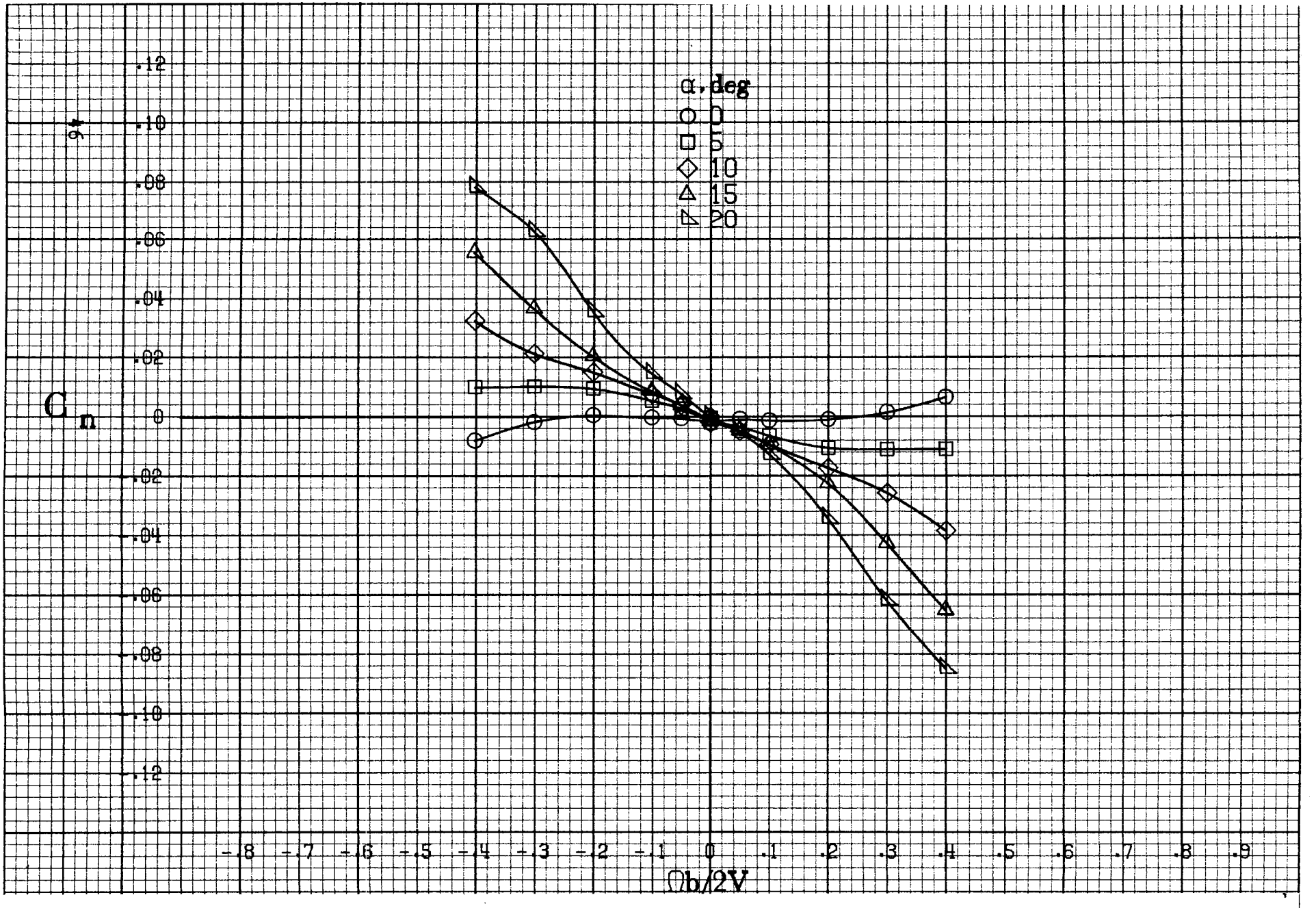
(c) $\alpha = 50^{\circ}$ to 70°

Figure 7.- Continued.



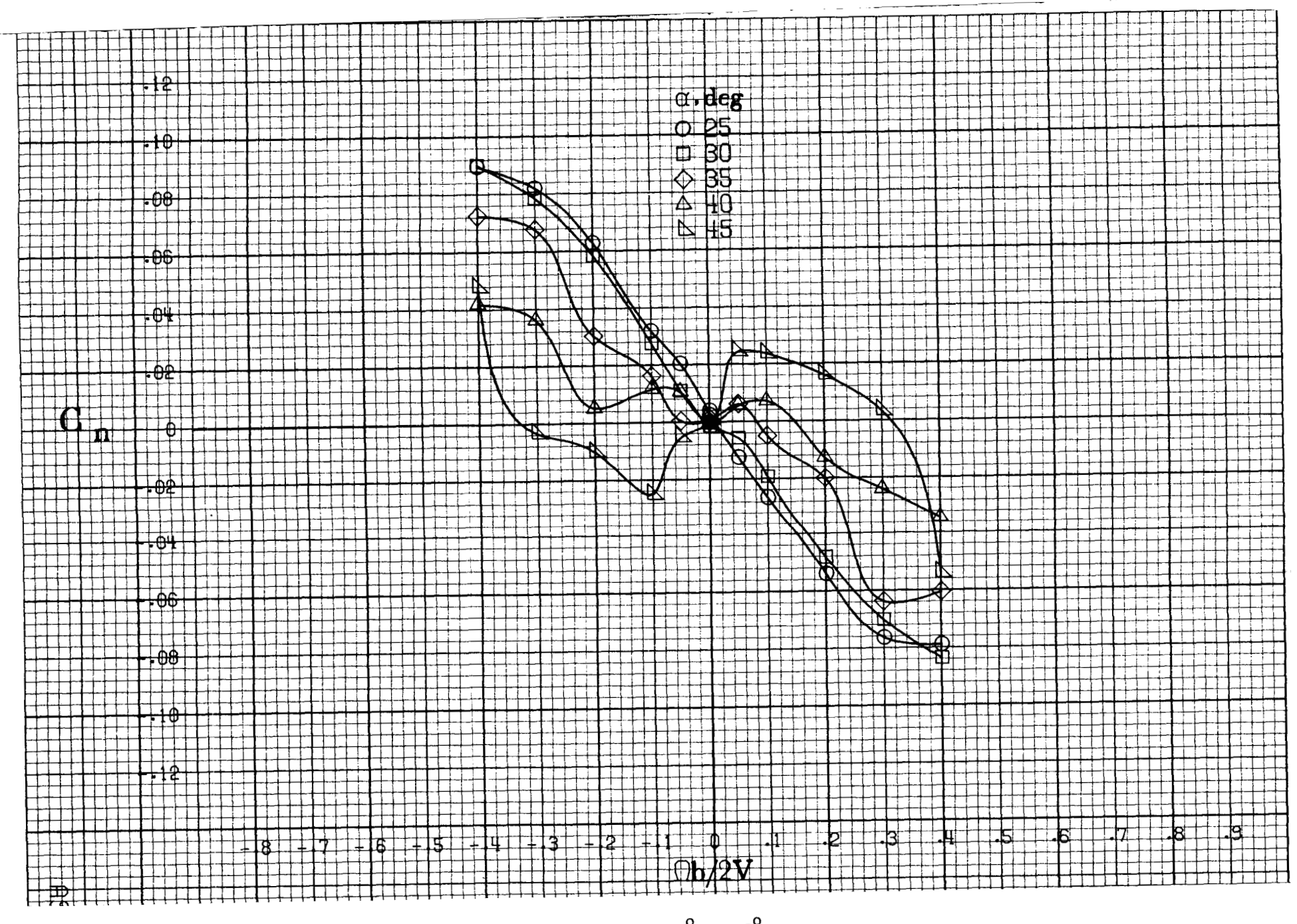
(d) $\alpha = 75^{\circ}$ to 90°

Figure 7.- Concluded.



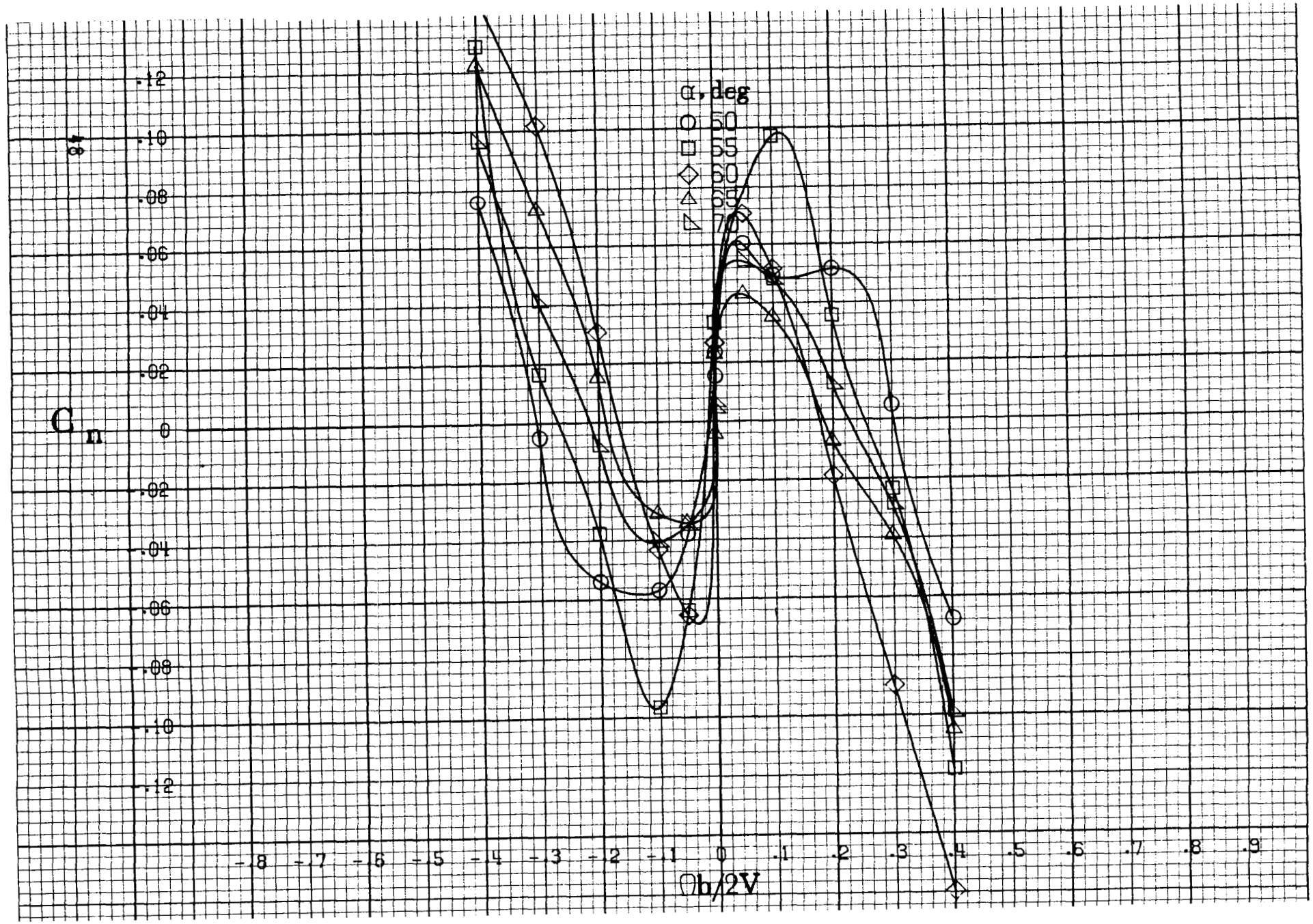
(a) $\alpha = 0^{\circ}$ to 20°

Figure 8.- Effect of rotation rate and angle of attack on yawing moment coefficient for the basic X-29A with neutral controls.



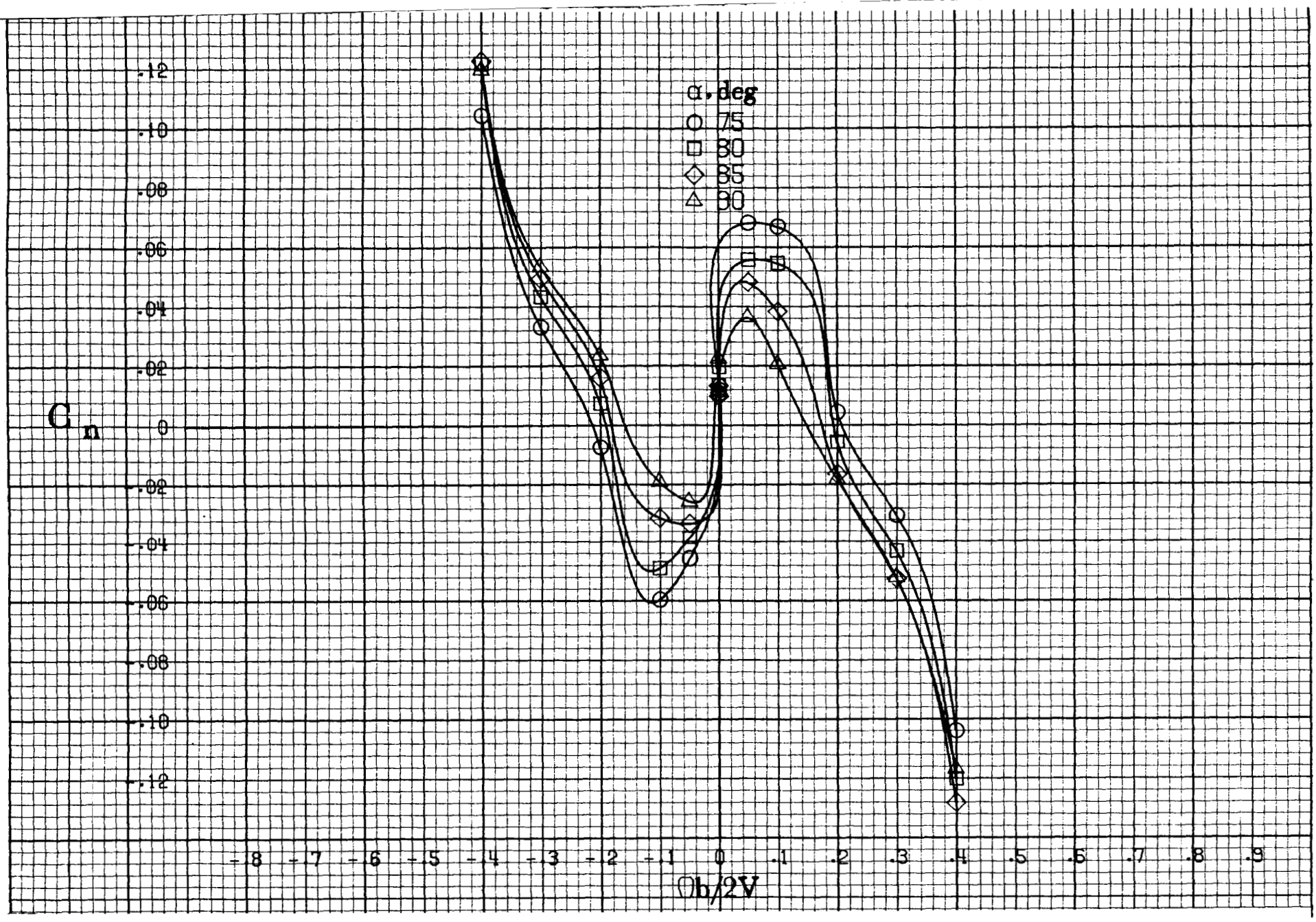
(b) $\alpha = 25^{\circ}$ to 45°

Figure 8.- Continued.



(c) $\alpha = 50^{\circ}$ to 70°

Figure 8.- Continued.



(d) $\alpha = 75^{\circ}$ to 90°

Figure 8.- Concluded.

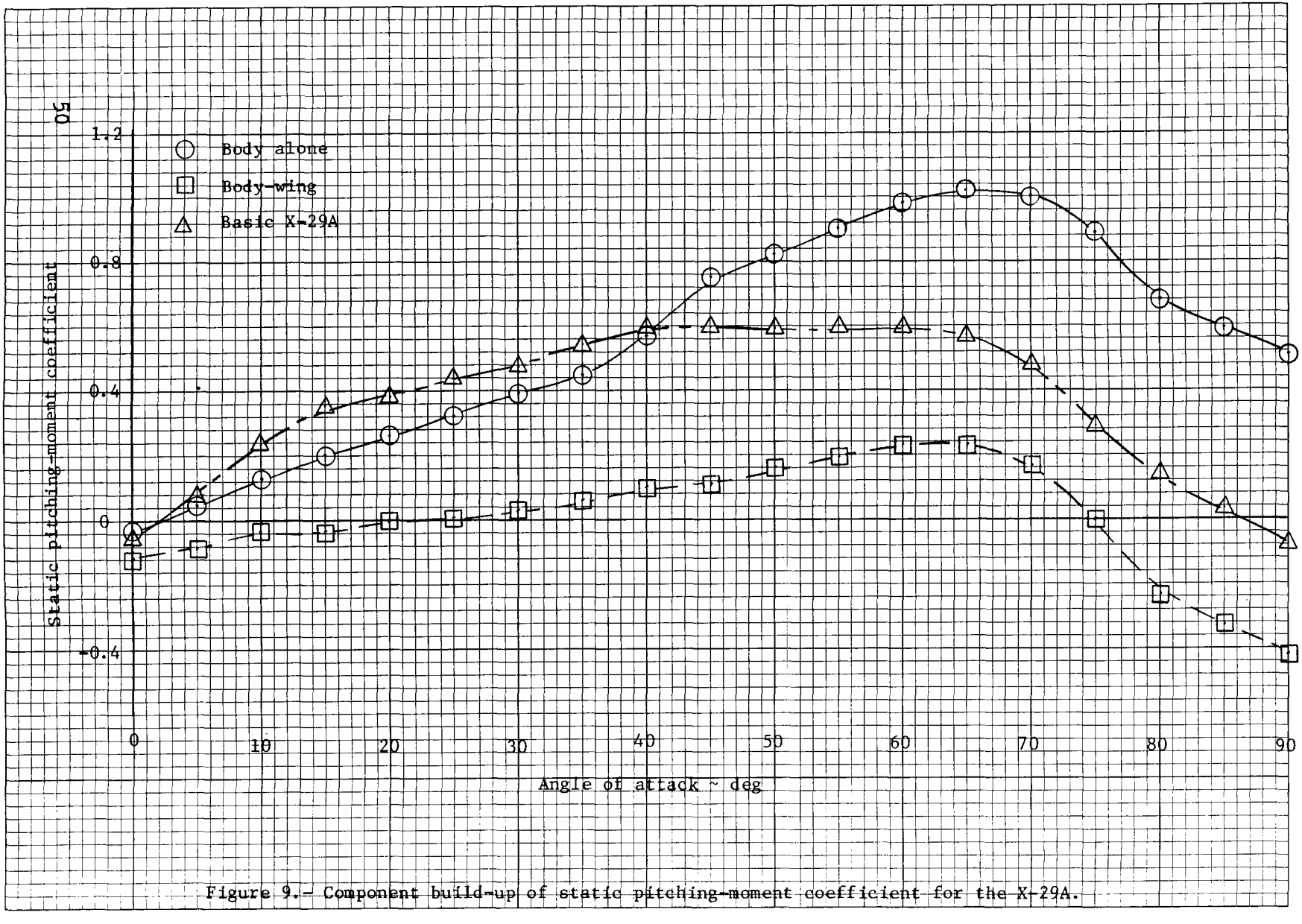
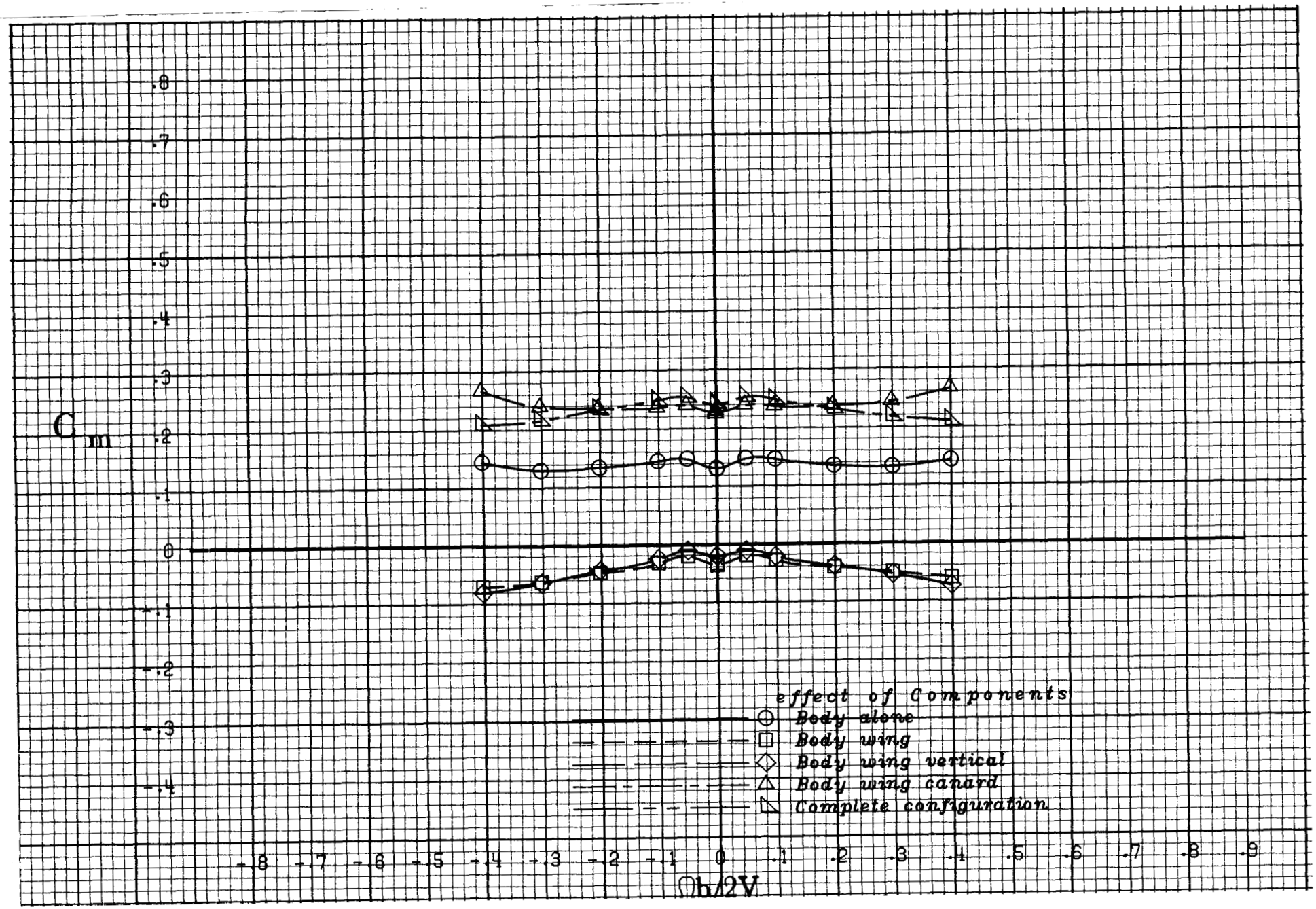
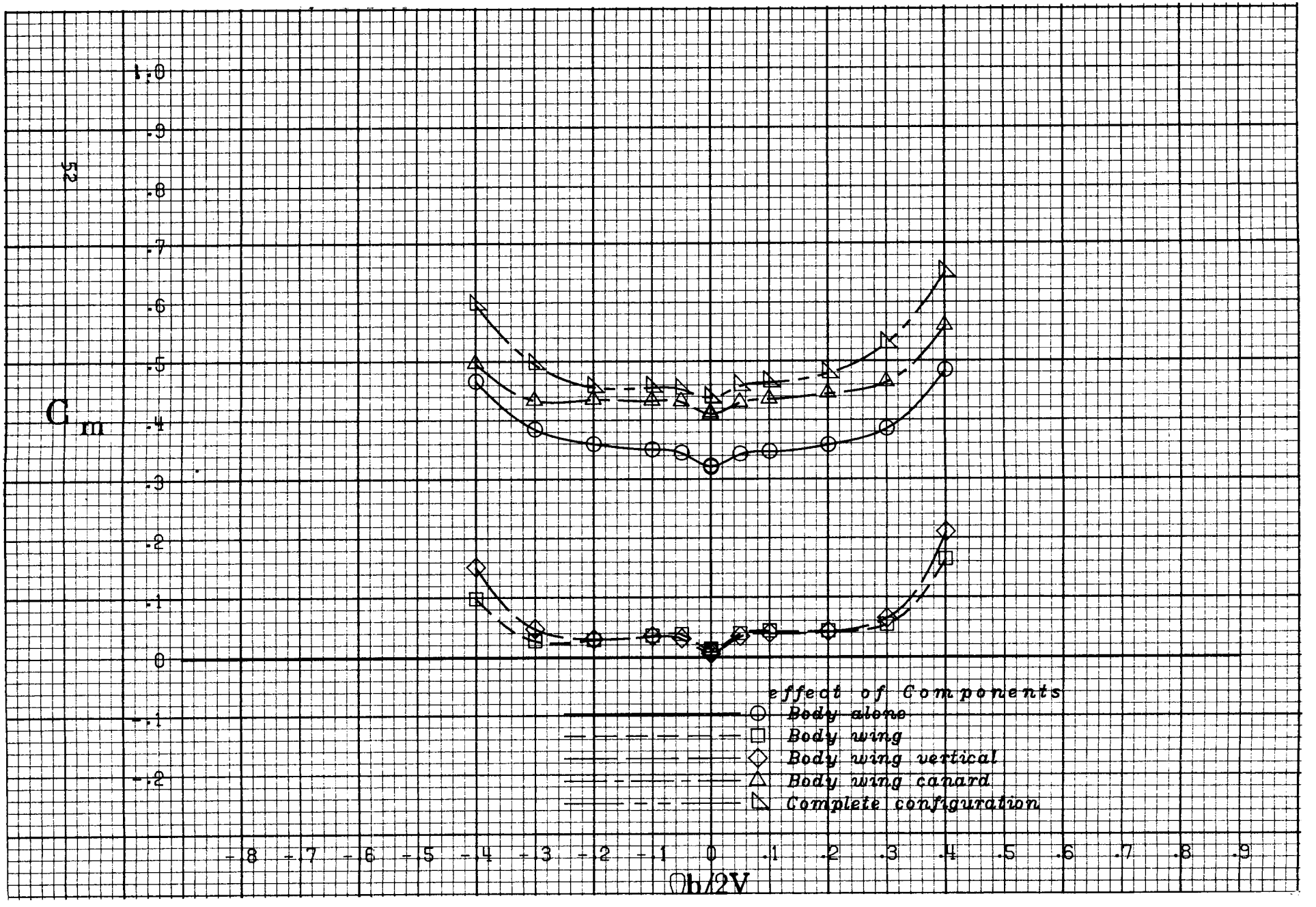


Figure 9.- Component build-up of static pitching-moment coefficient for the X-29A.



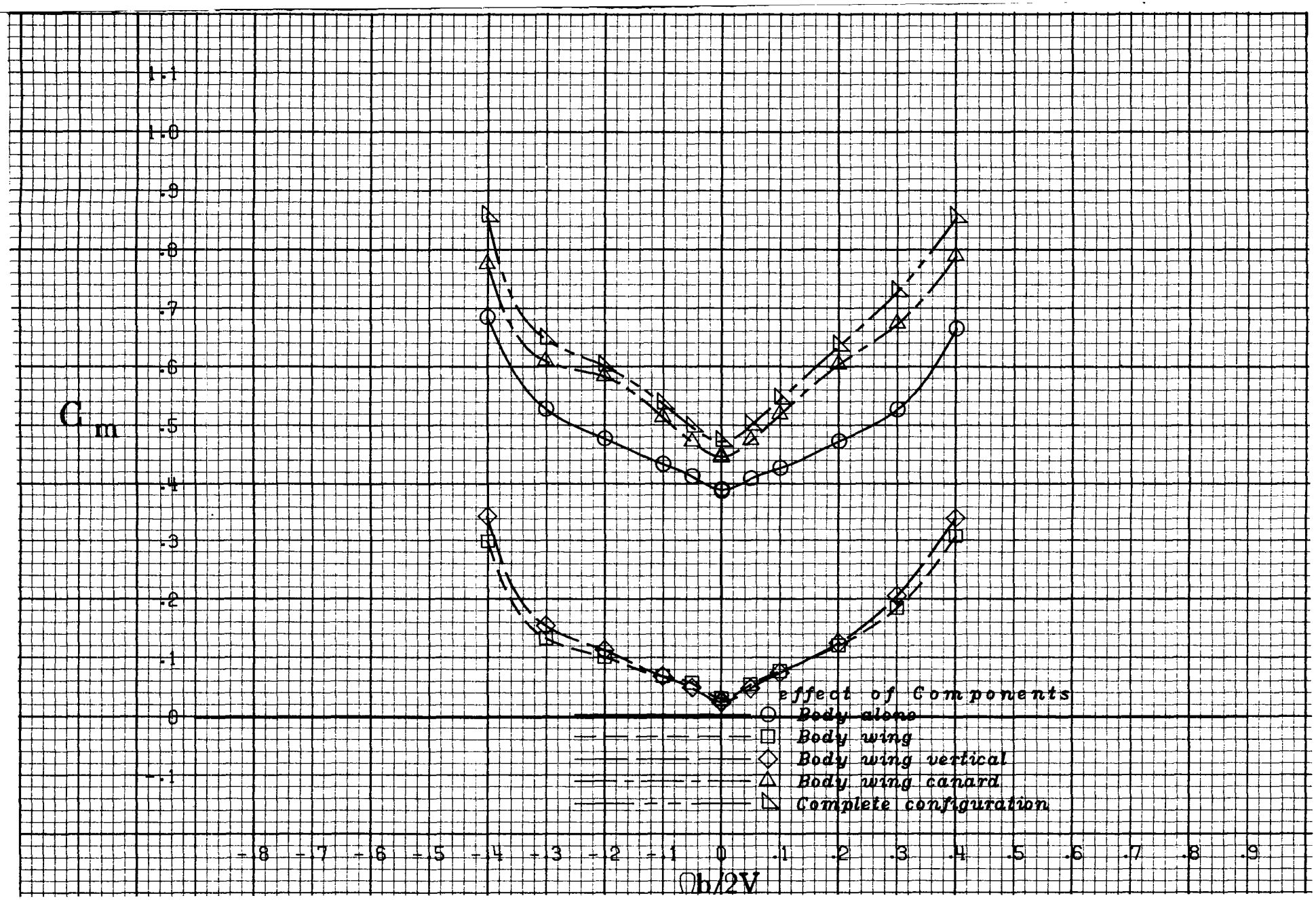
a) 10^{o} angle of attack

Figure 10.- Component build-up of the pitching-moment coefficient for the basic airplane.



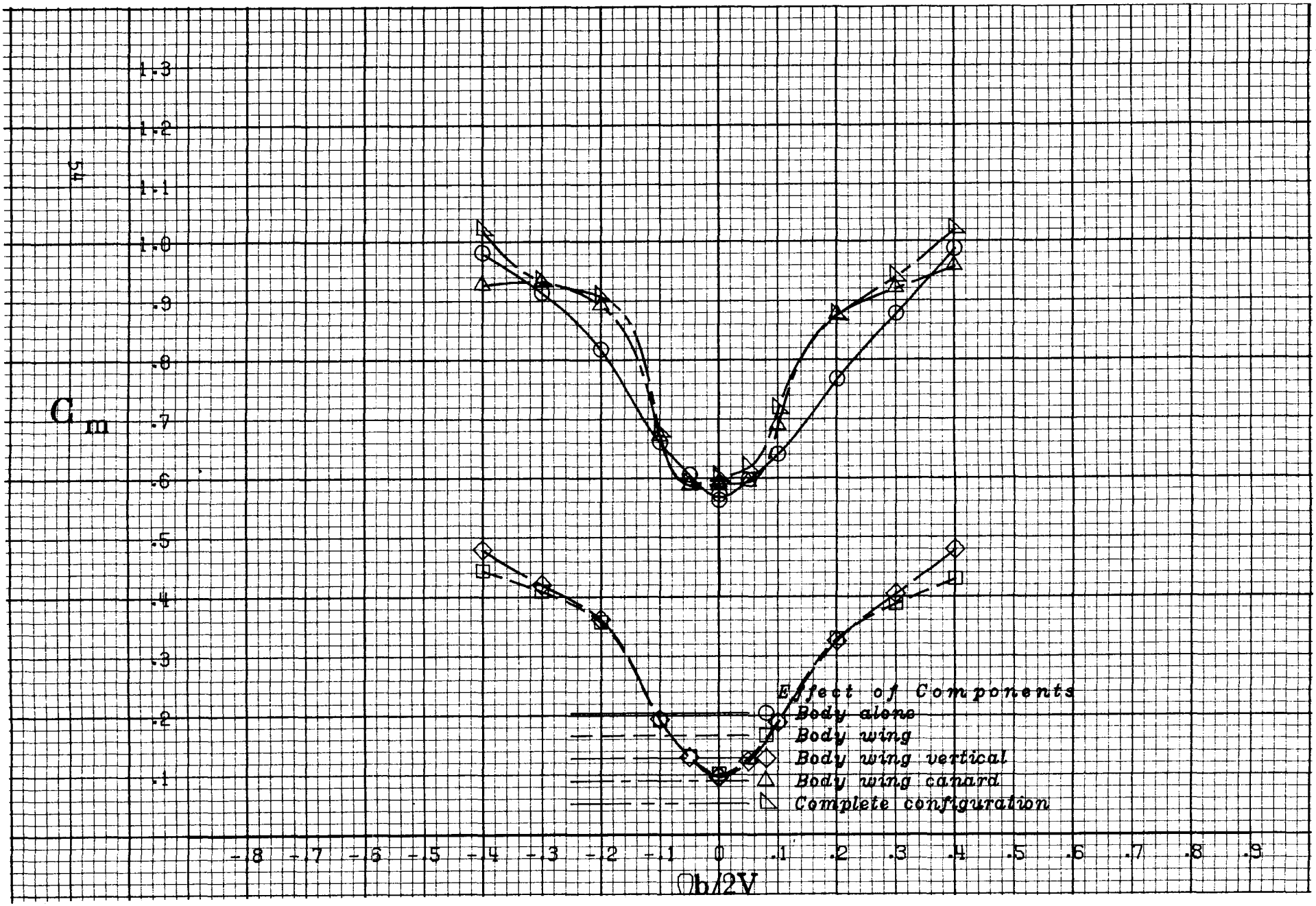
b) 25° angle of attack

Figure 10.- Continued.



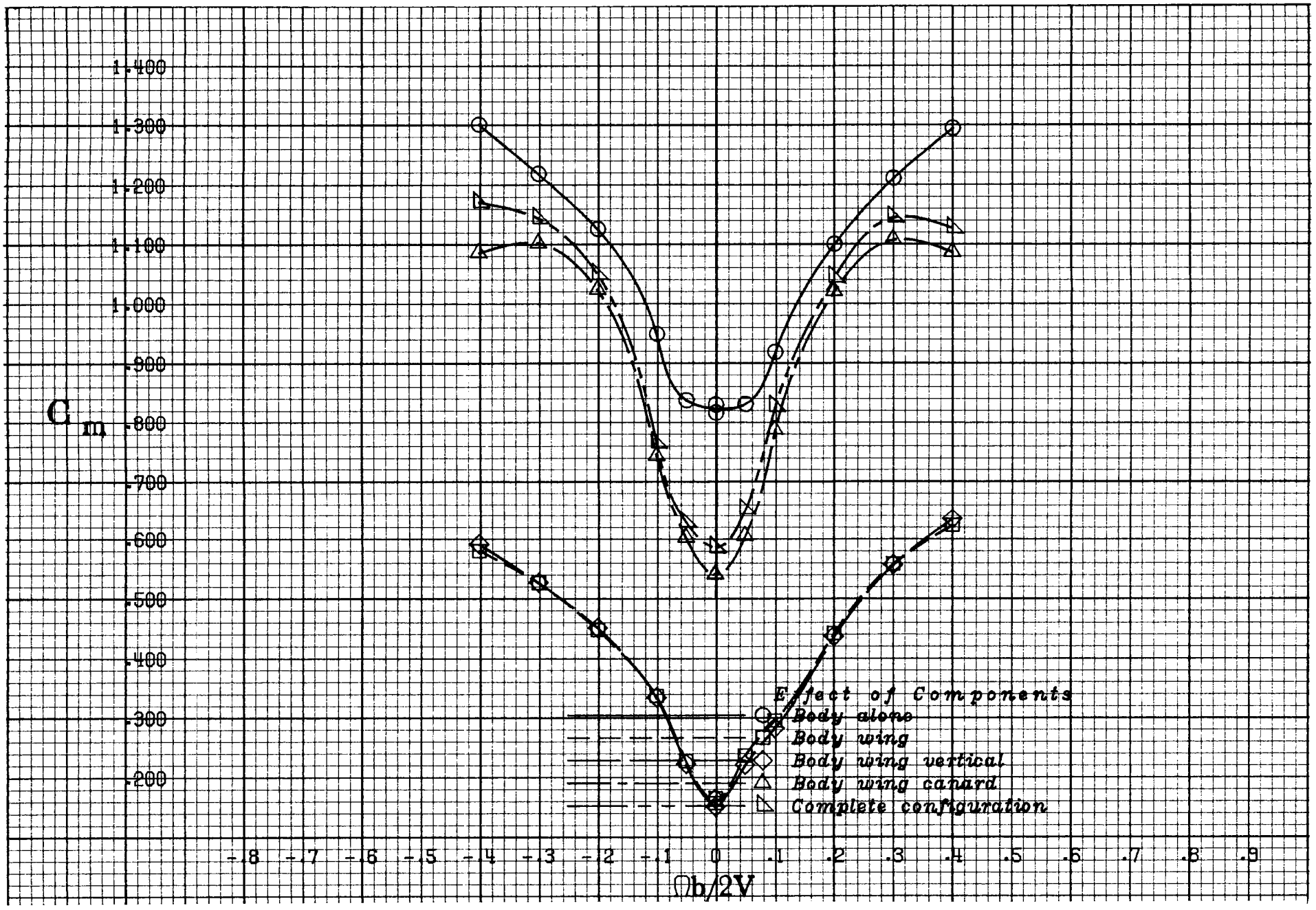
c) 30° angle of attack

Figure 10.- Continued.



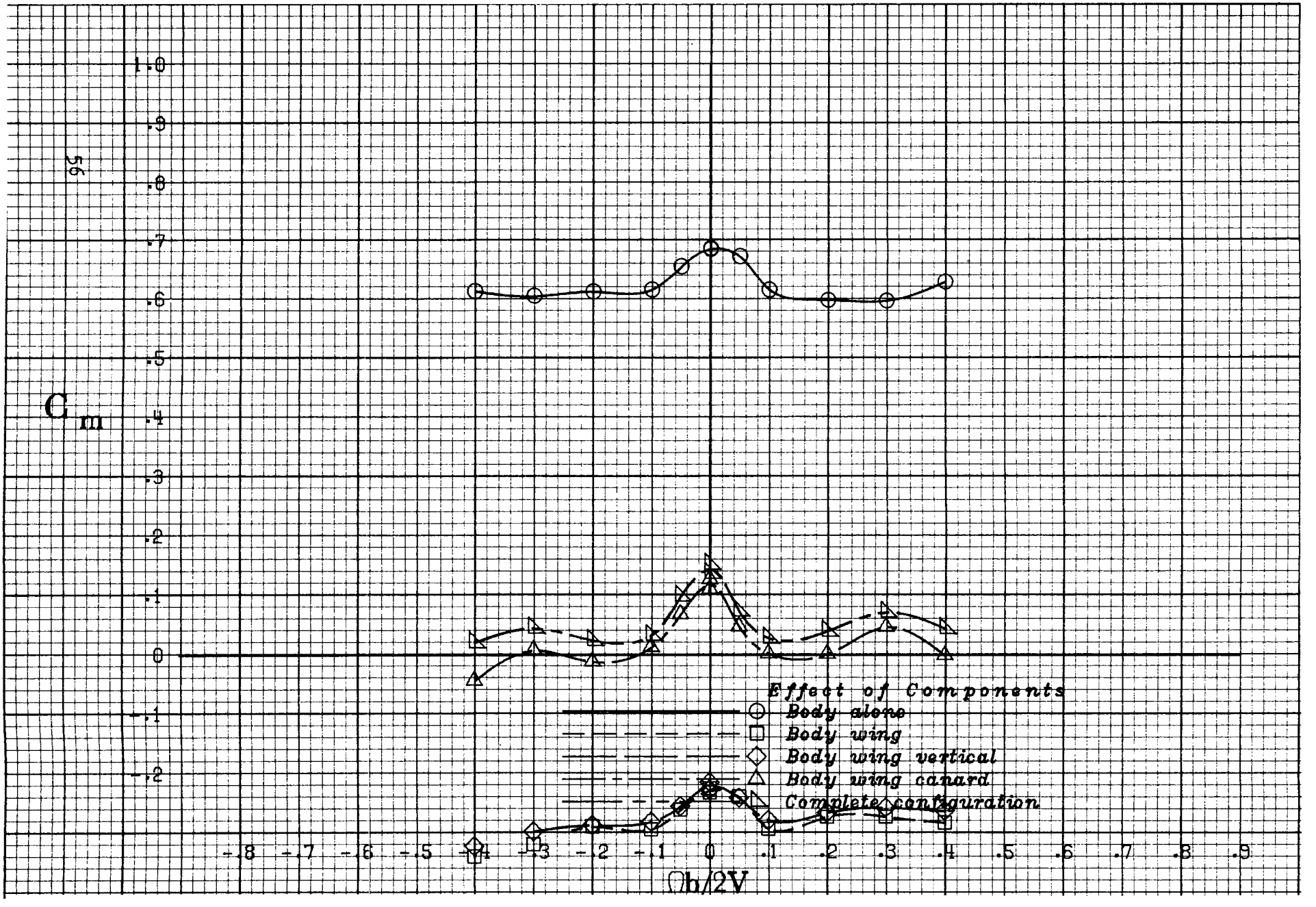
d) 40° angle of attack

Figure 10.- Continued.



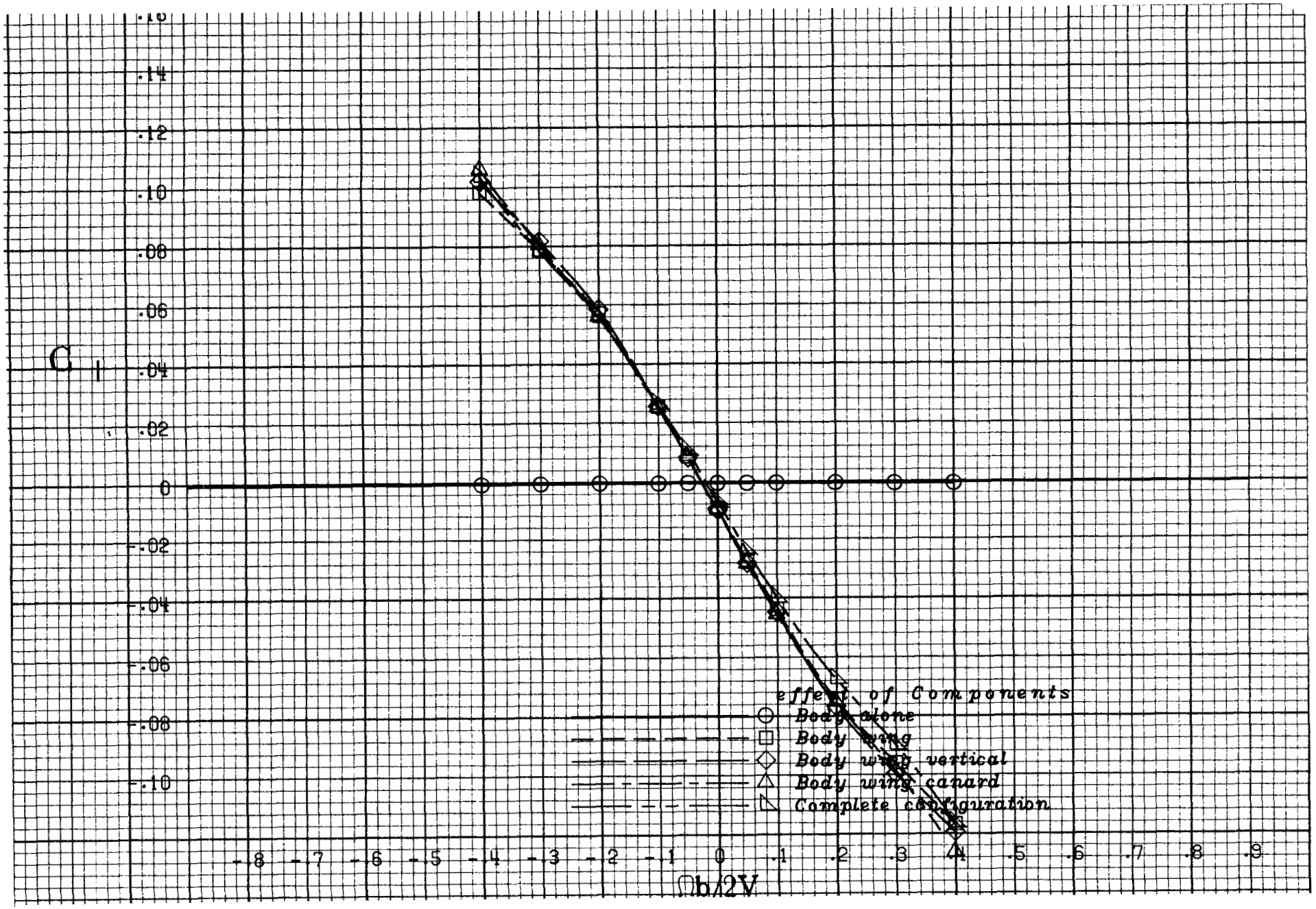
e) 50° angle of attack

Figure 10.- Continued.



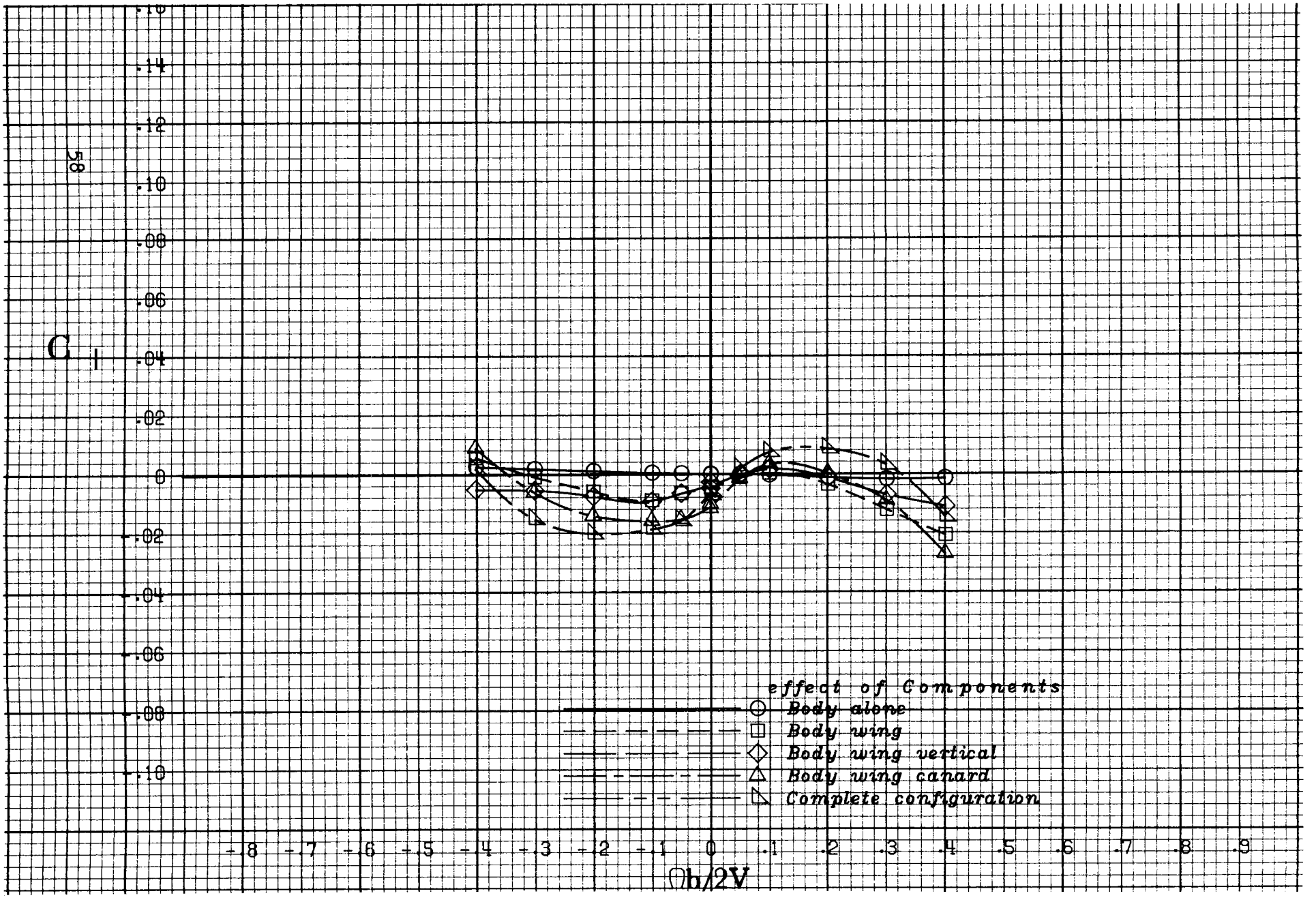
f) 80° angle of attack

Figure 10.- Concluded.



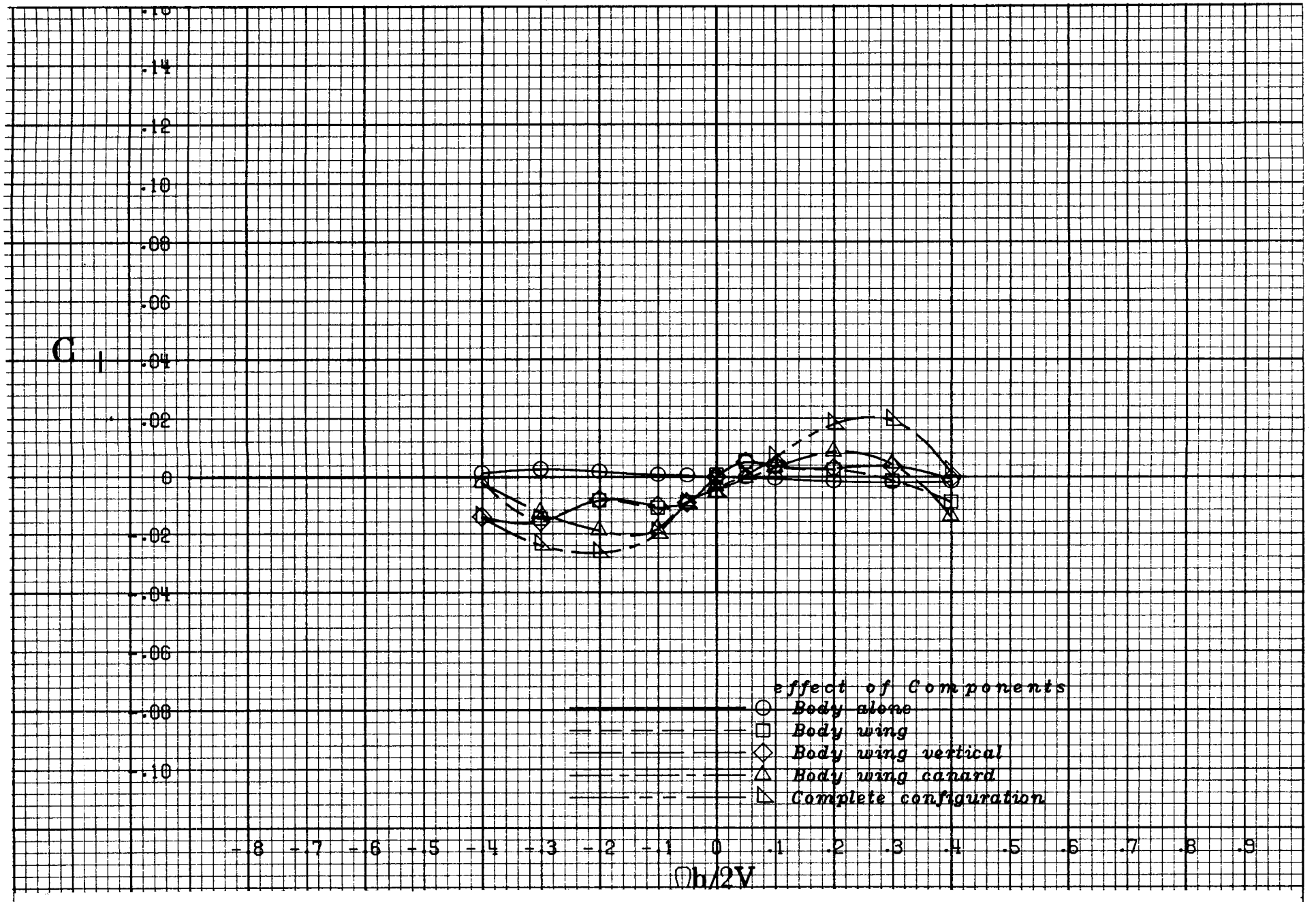
a) 10° angle of attack

Figure 11.- Component build-up of the rolling-moment coefficient for the basic airplane.



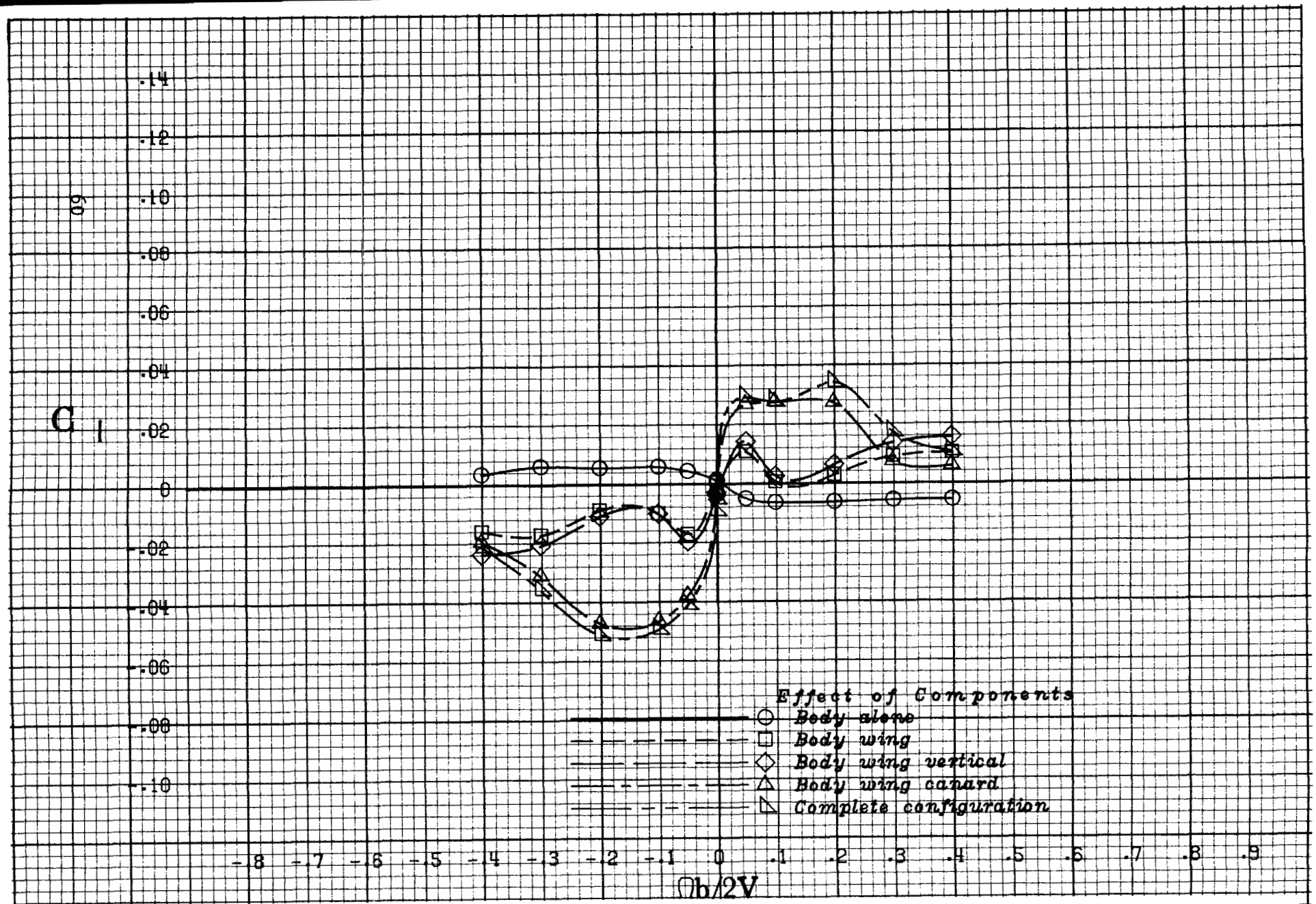
b) 25° angle of attack

Figure 11.- Continued.



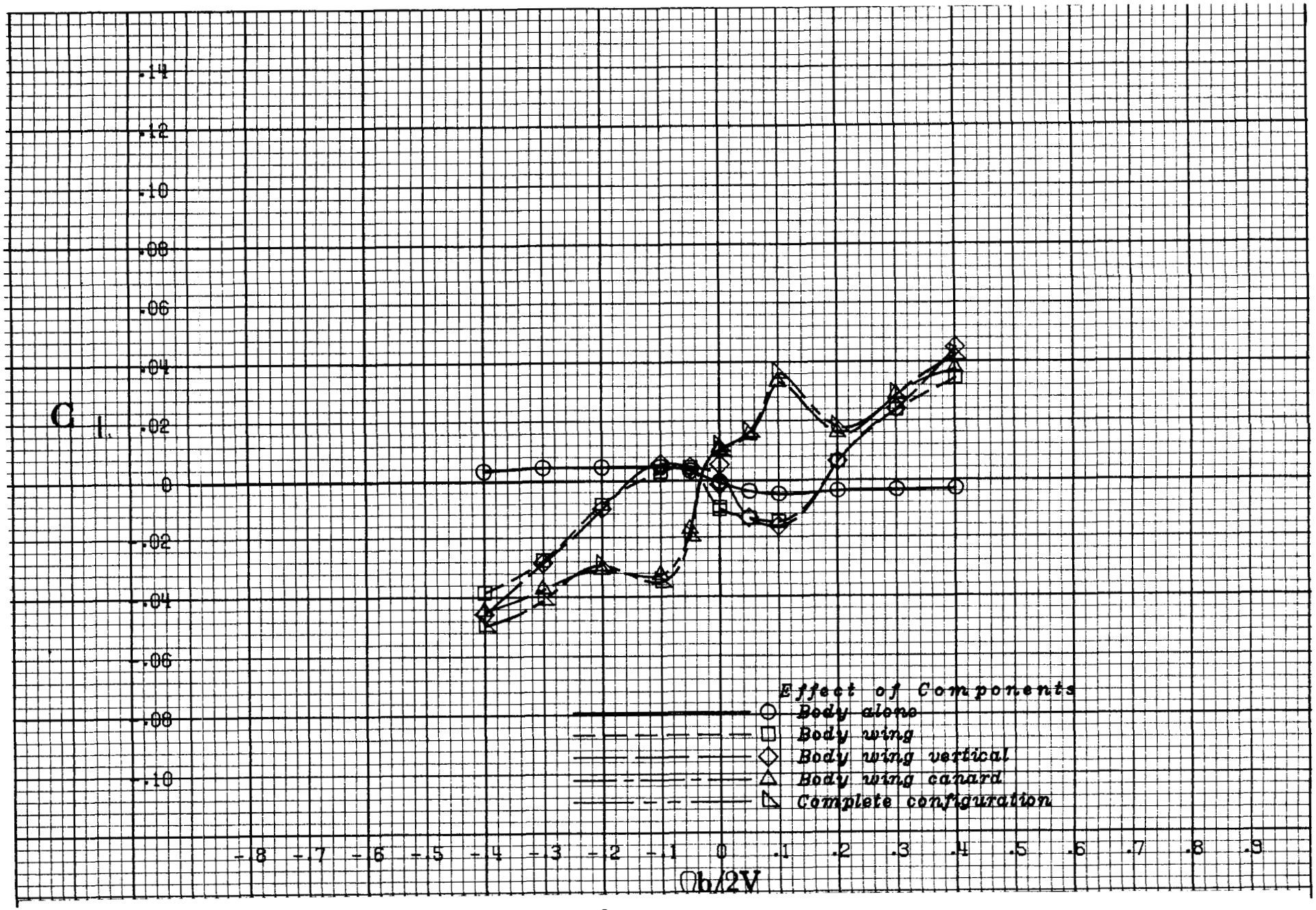
c) 30° angle of attack

Figure 11.- Continued.



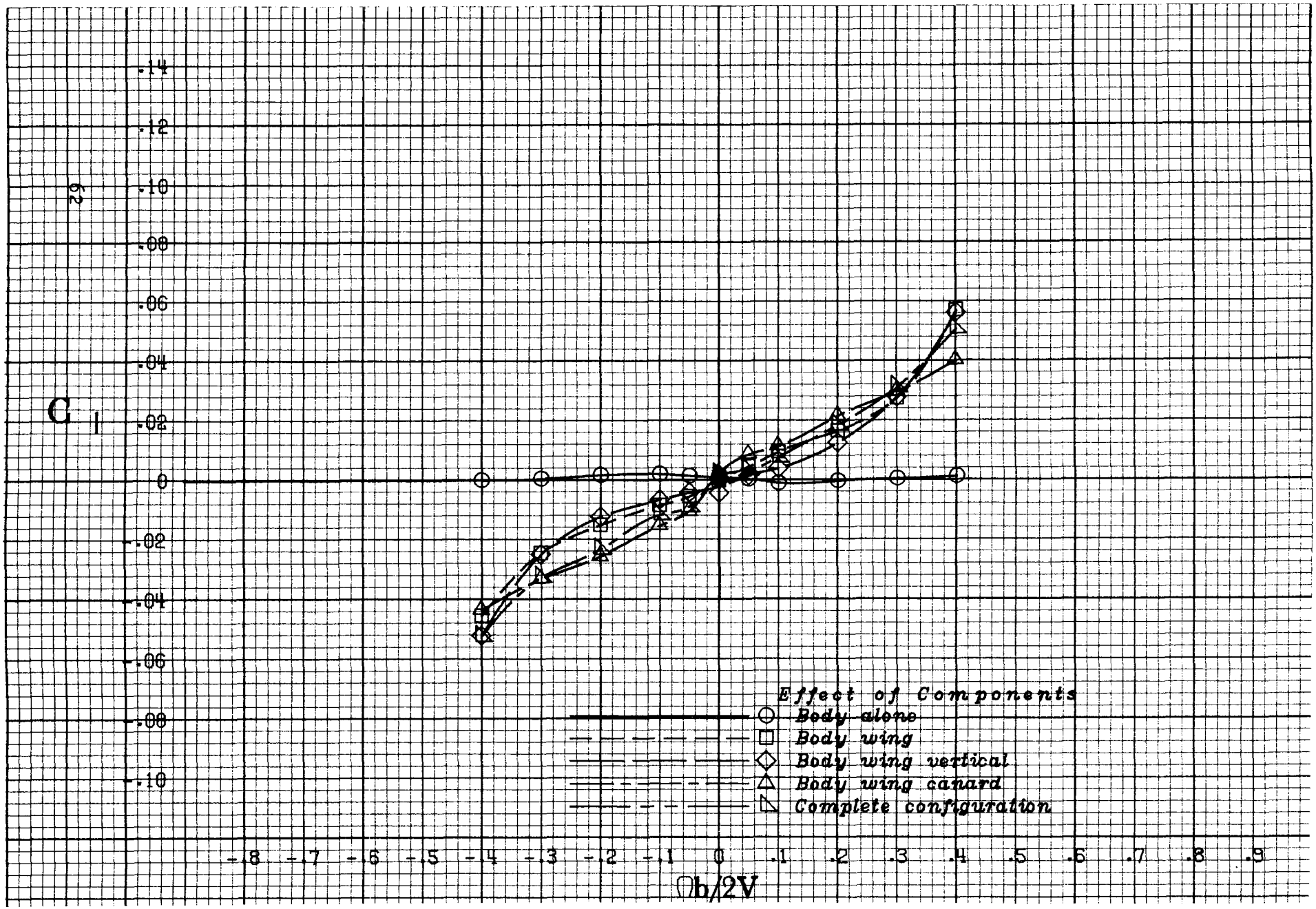
d) 40° angle of attack

Figure 11.- Continued.



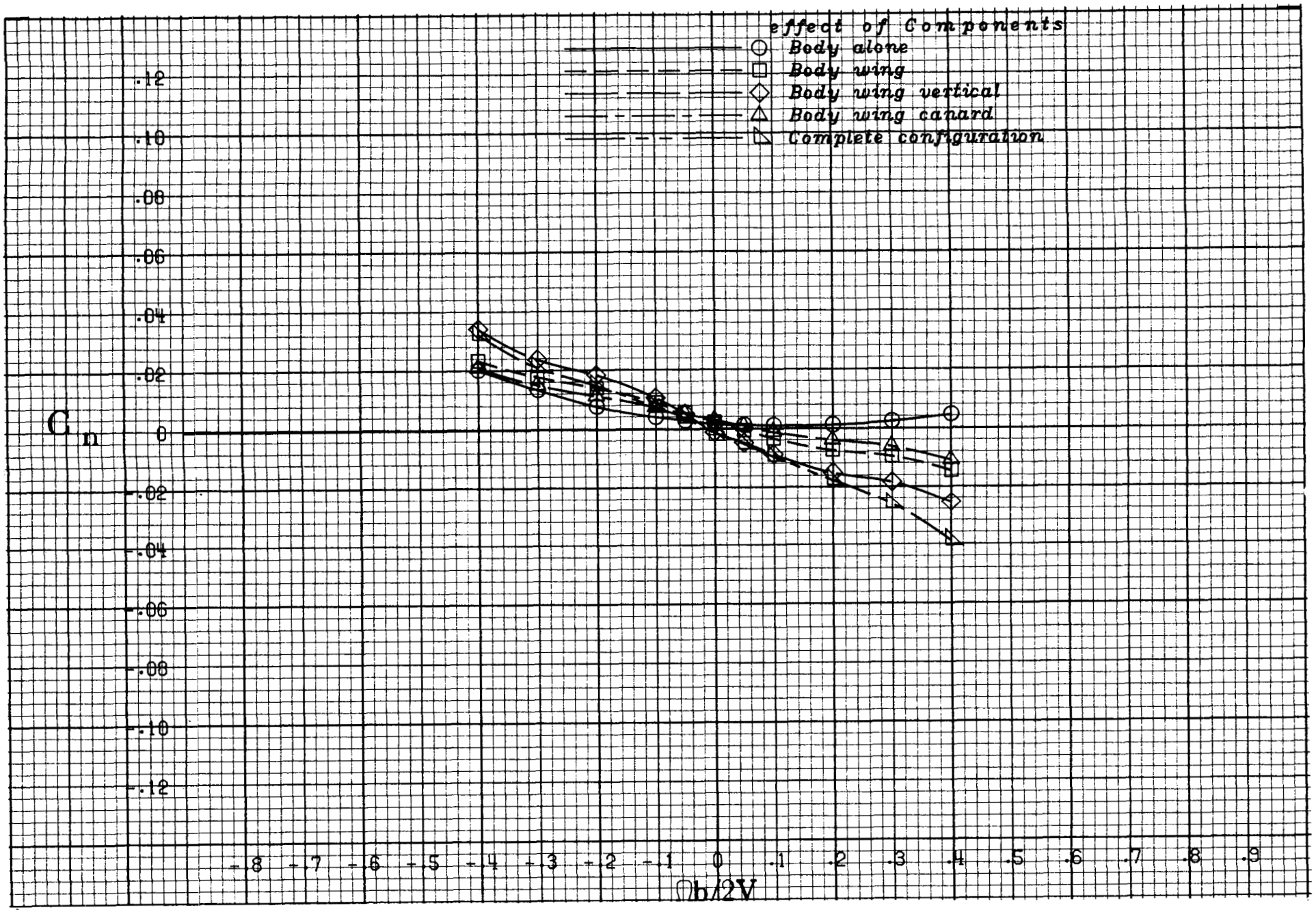
e) 50° angle of attack

Figure 11.- Continued.



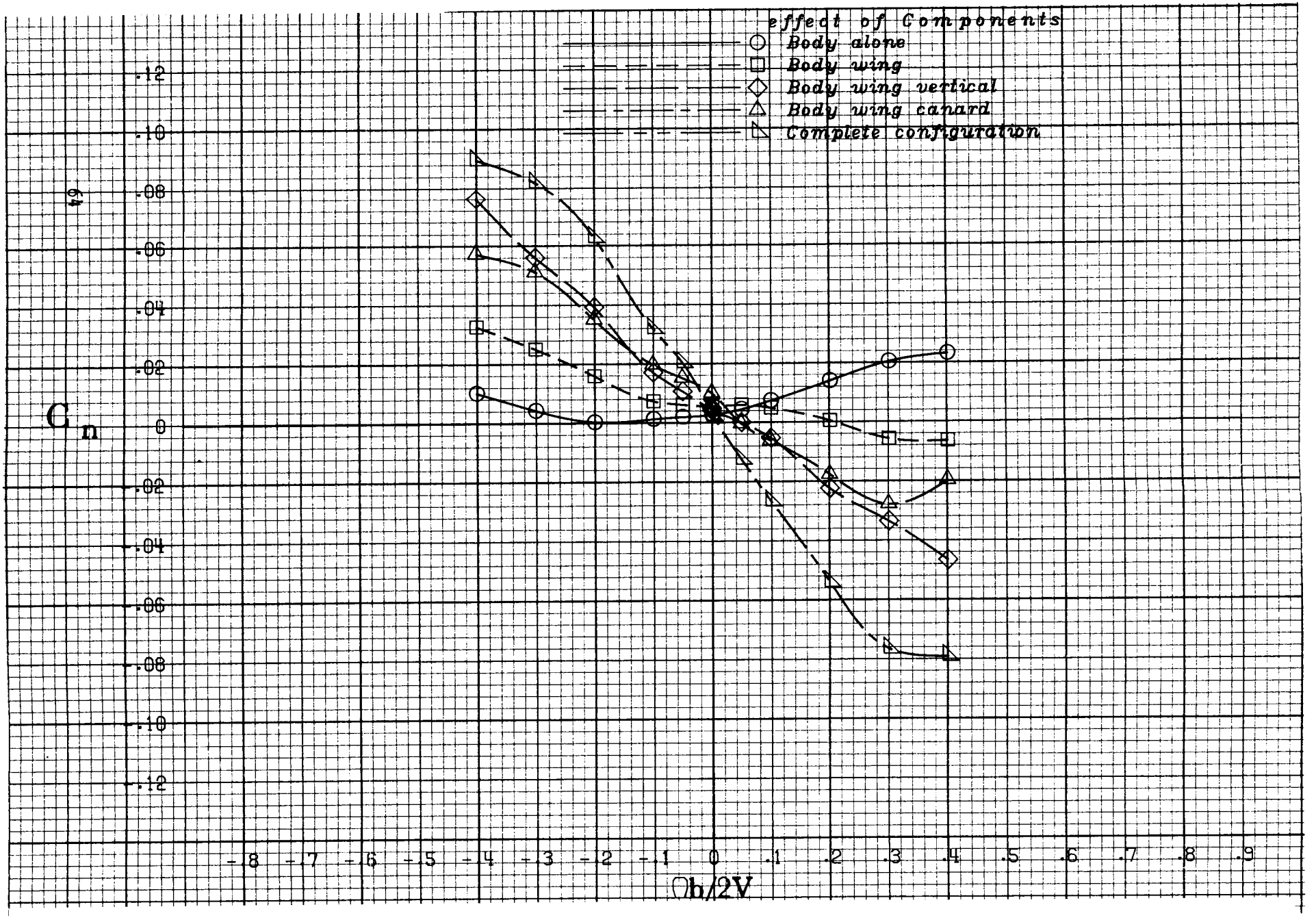
f) 80° angle of attack

Figure 11.- Concluded.



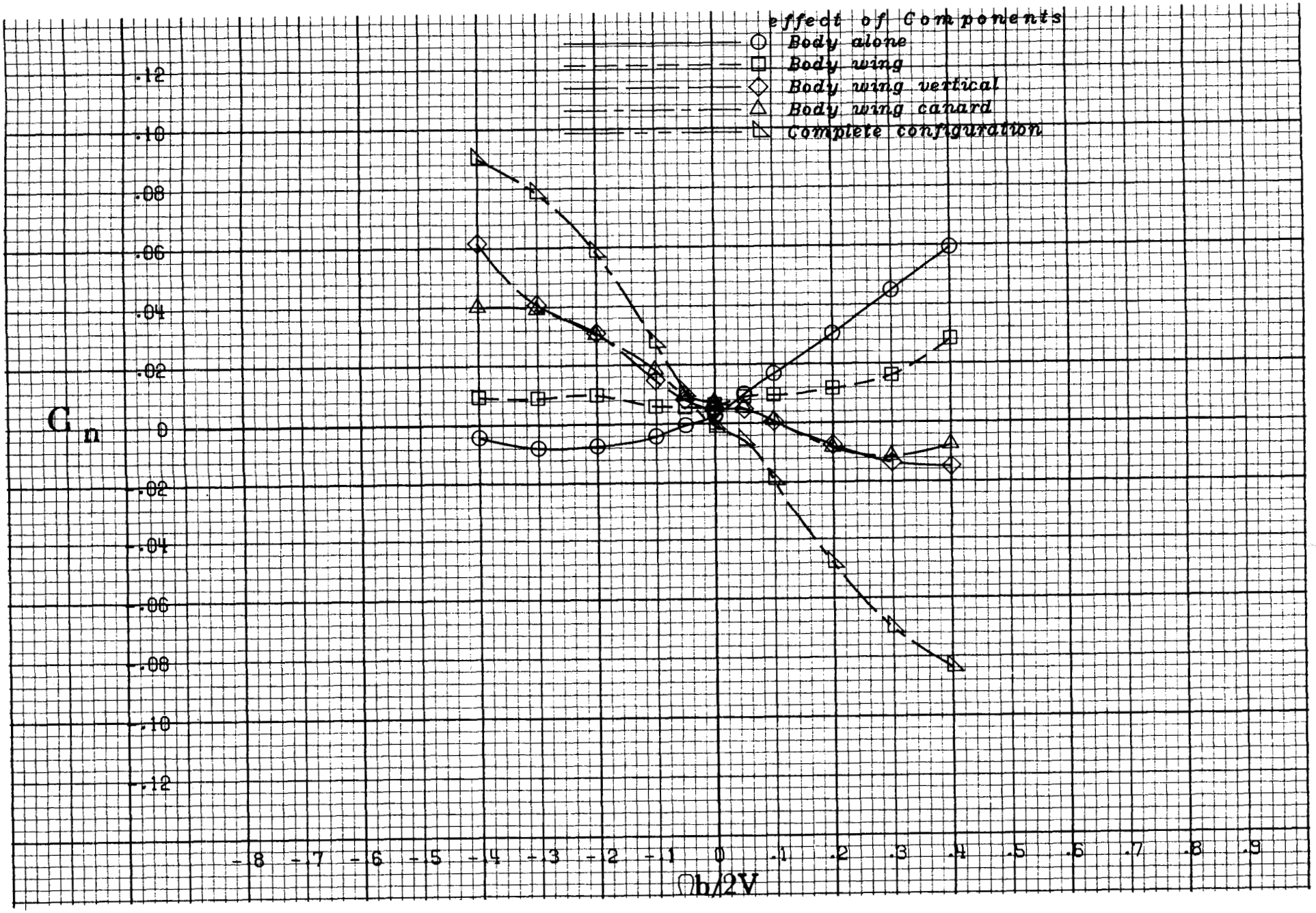
a) 10° angle of attack

Figure 12.- Component build-up of the yawing-moment coefficient for the basic airplane.



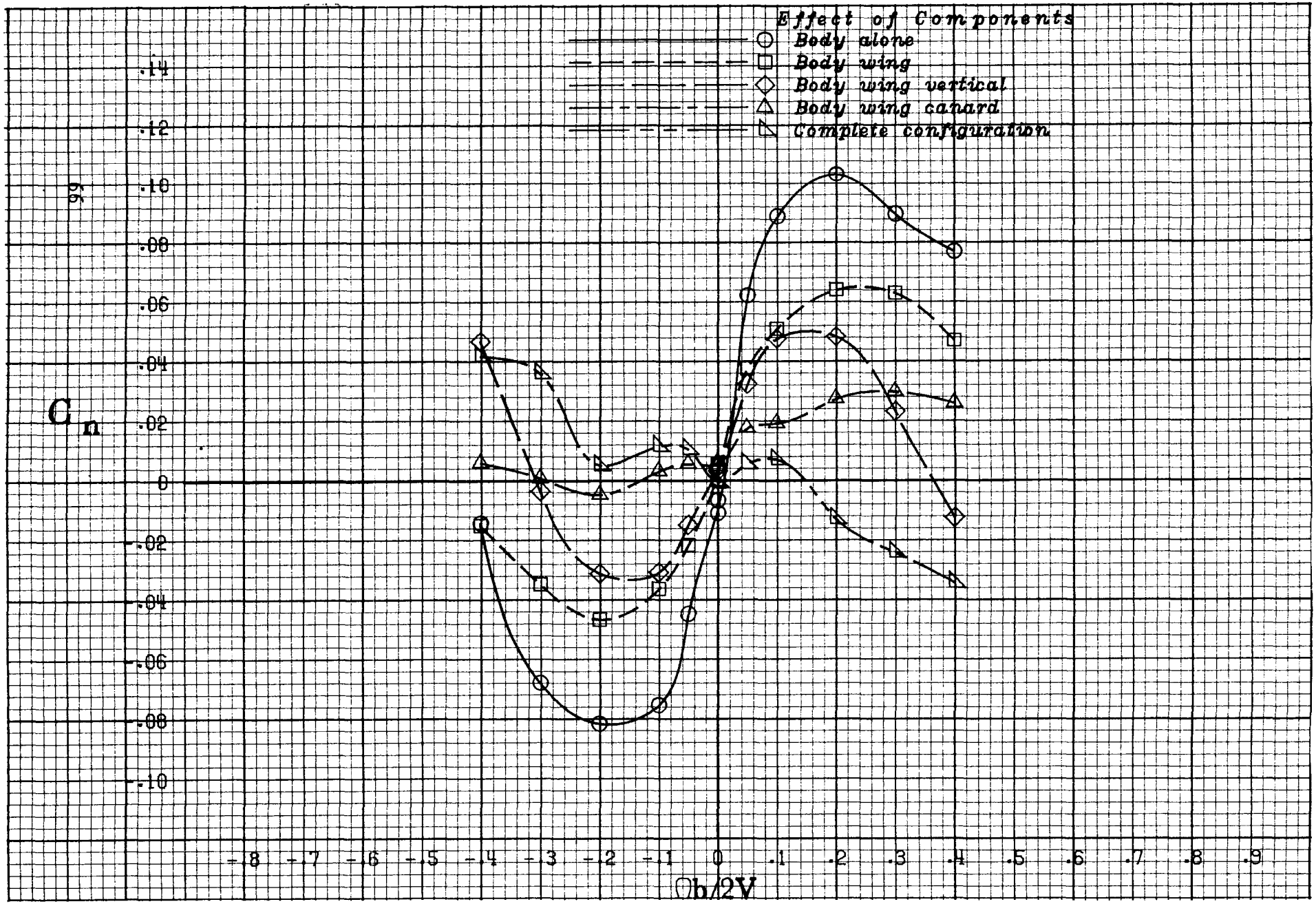
b) 25^{o} angle of attack

Figure 12.- Continued.



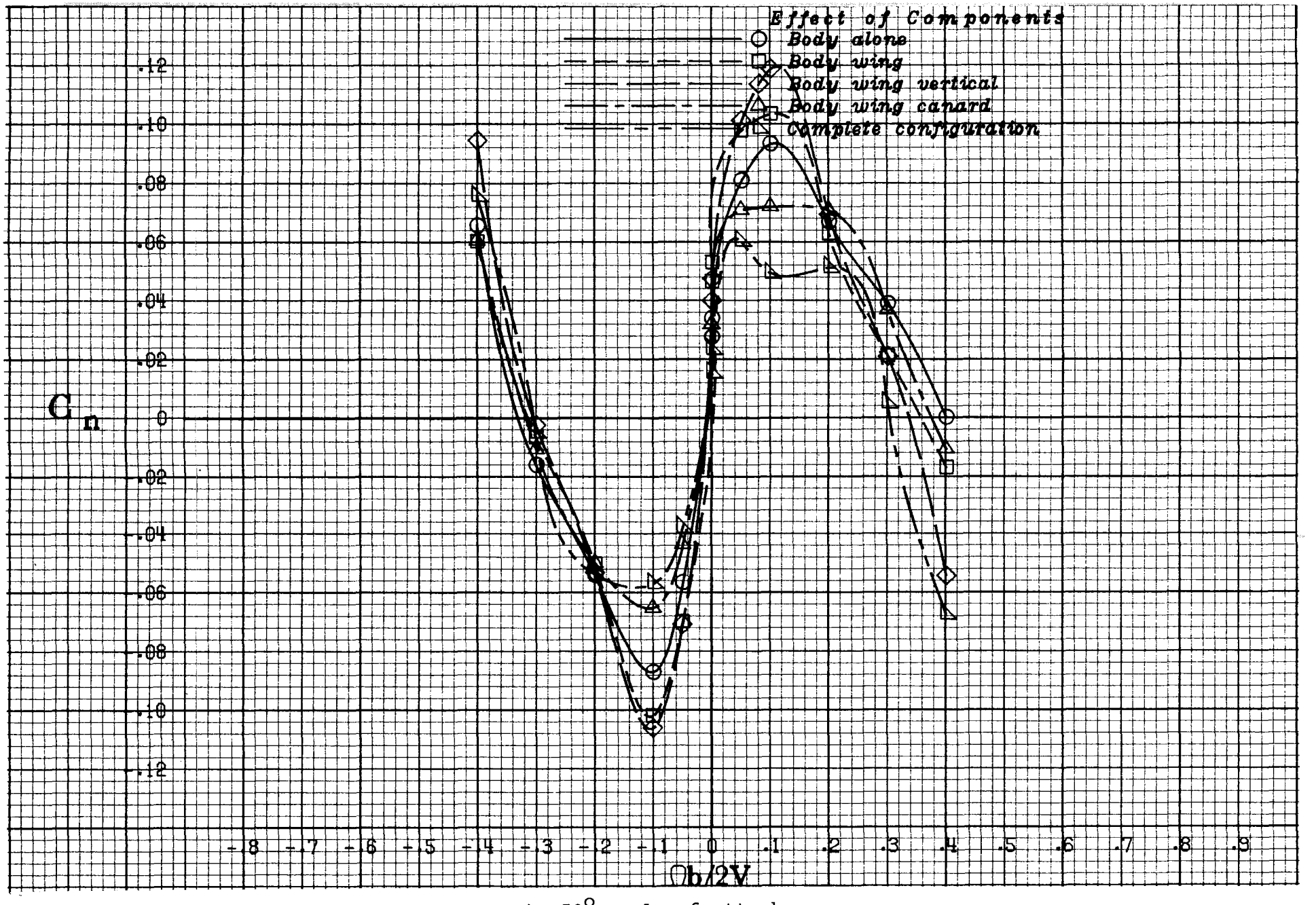
c) 30° angle of attack

Figure 12.- Continued.



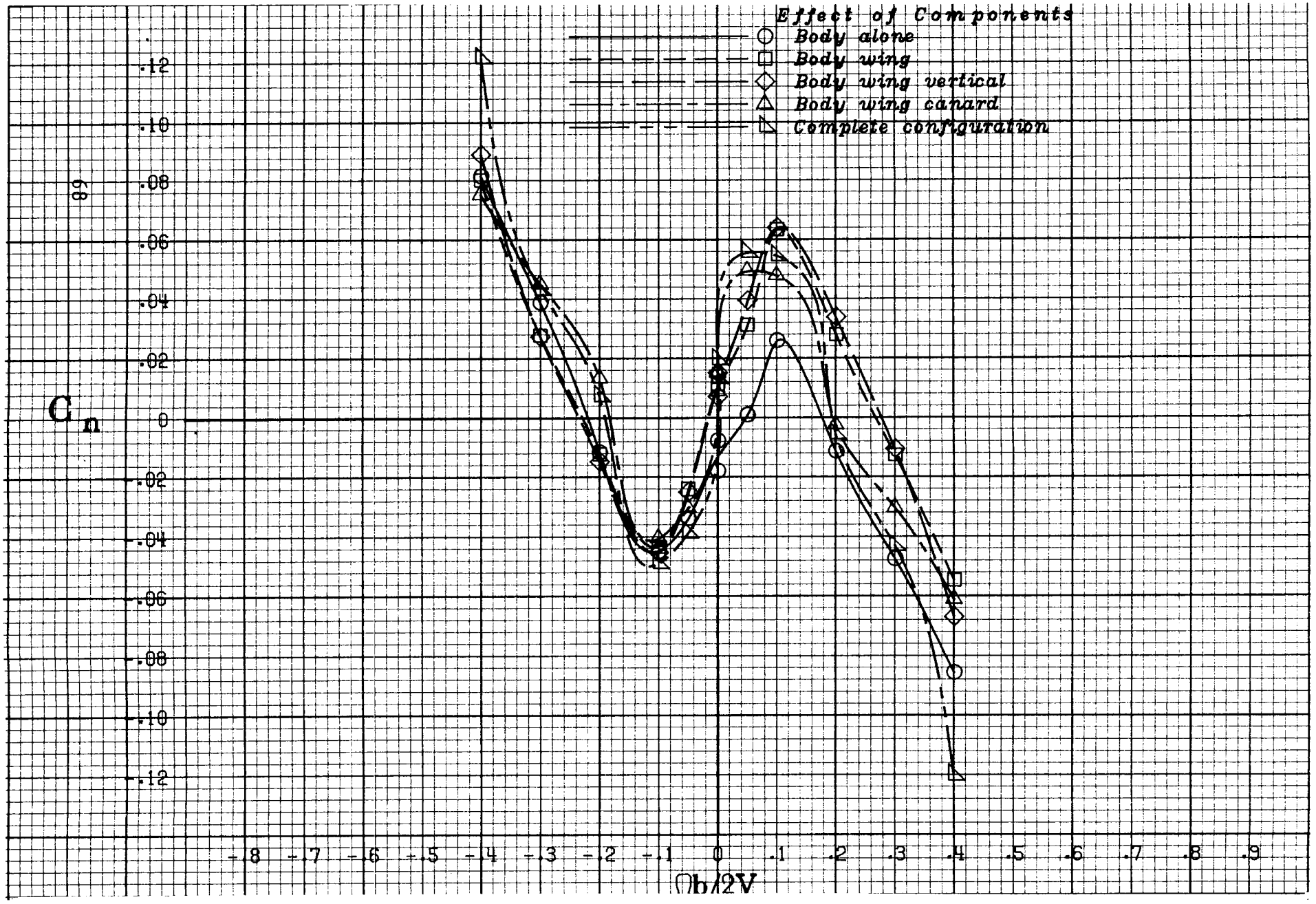
d) 40° angle of attack

Figure 12.- Continued.



e) 50° angle of attack

Figure 12.- Continued.



f) 80° angle of attack

Figure 12.- Concluded.

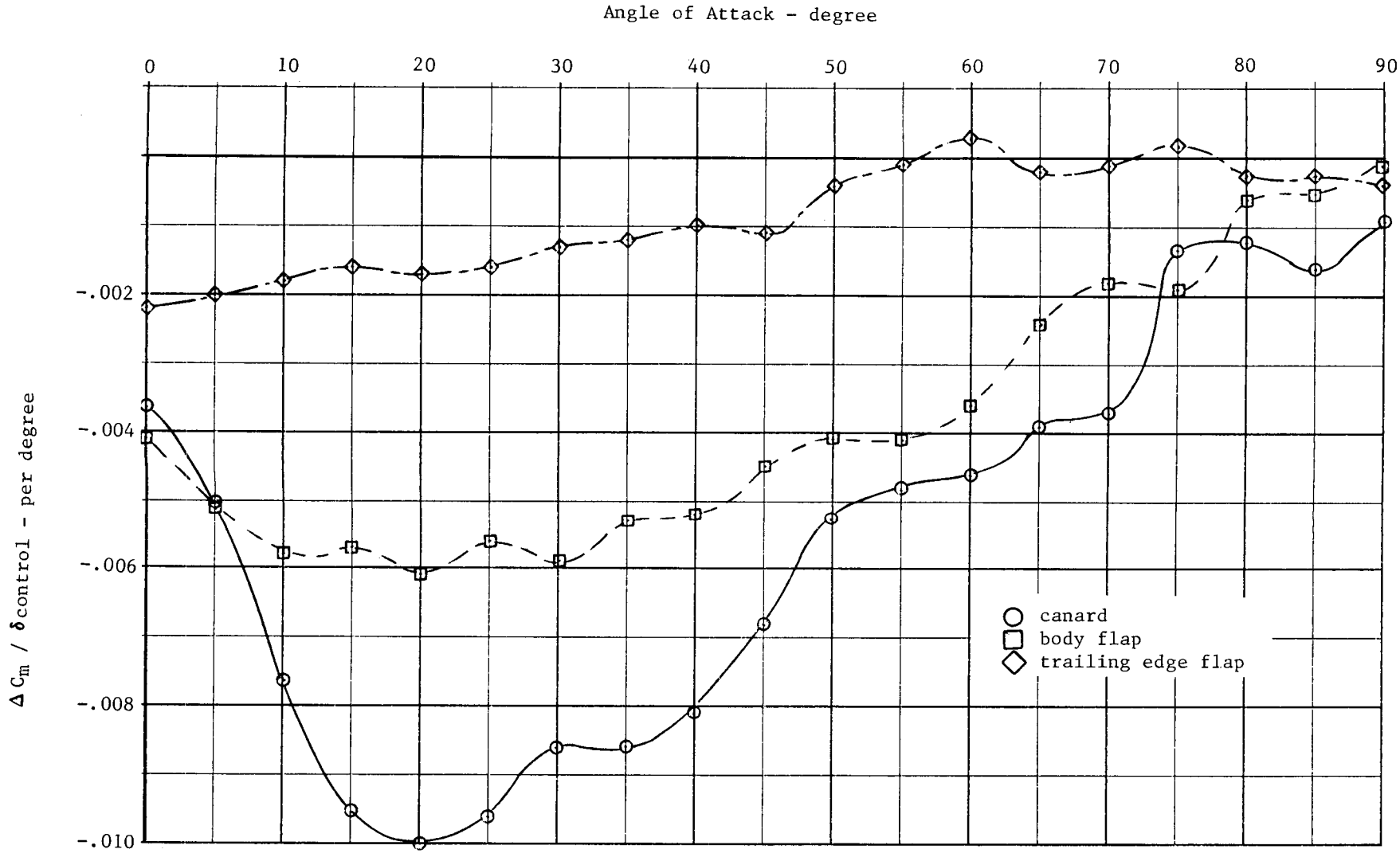
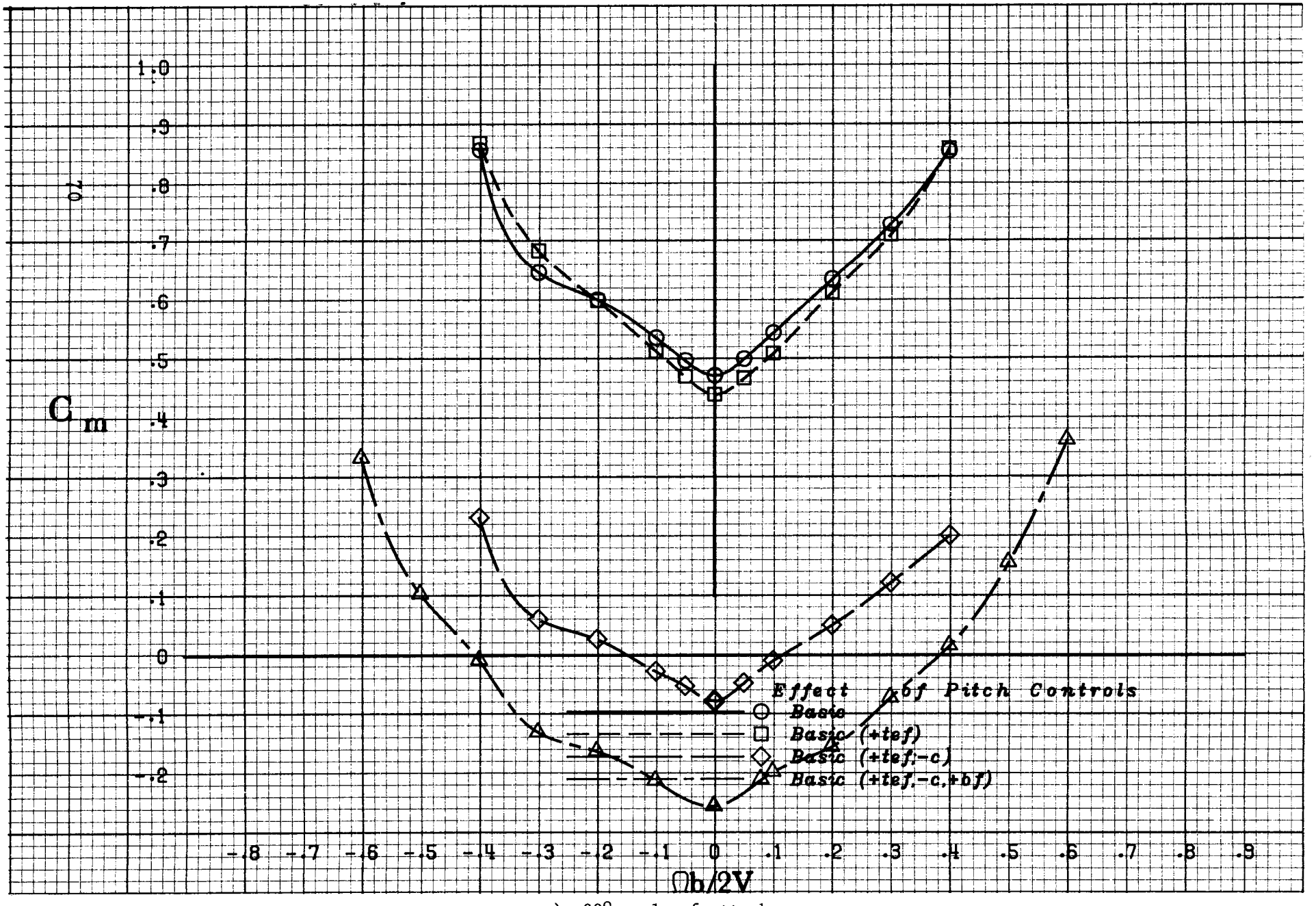
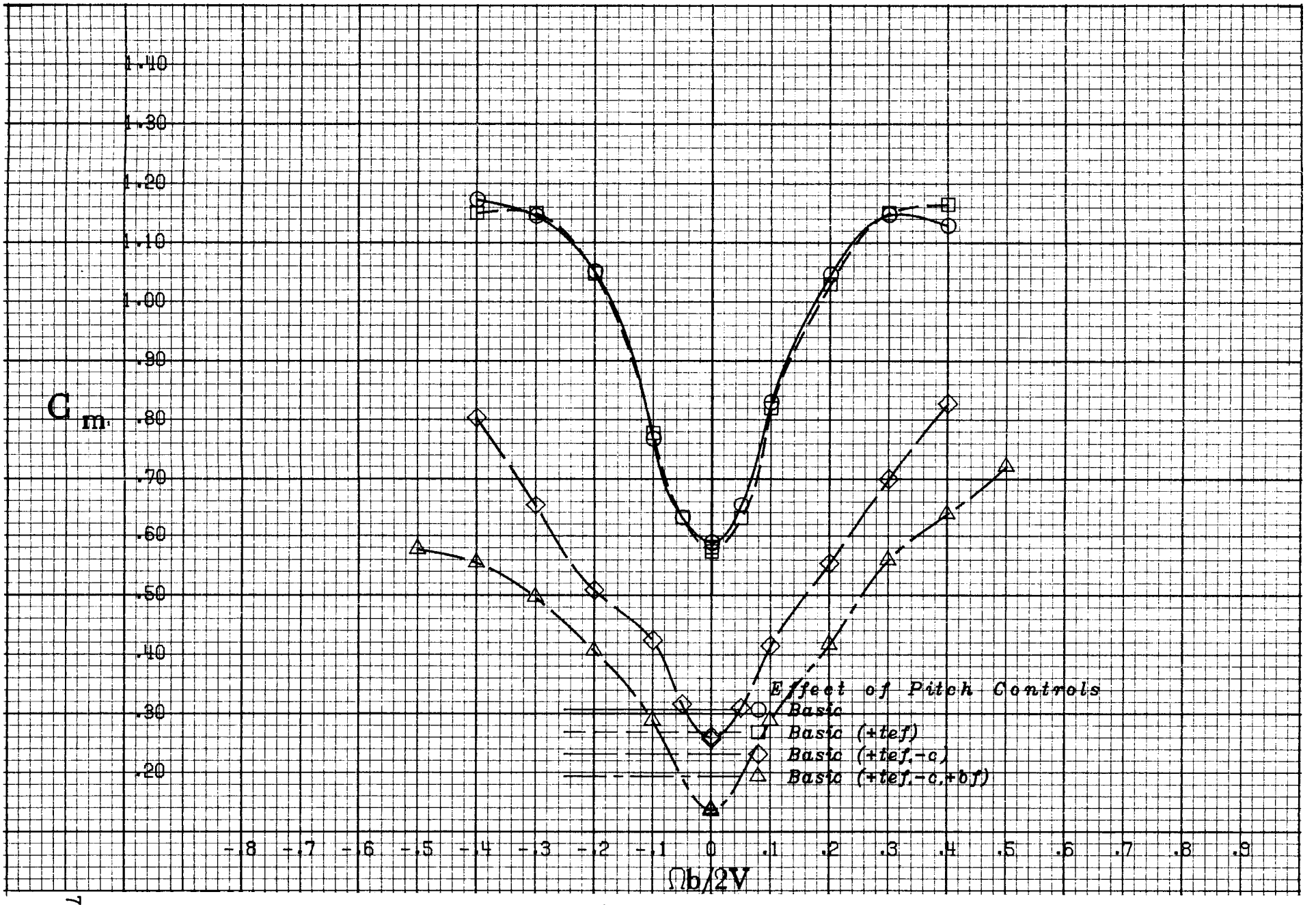


Figure 13.- Incremental pitching moment coefficient produced per unit of canard, body flap, and trailing-edge flap deflection as a function of angle of attack for the basic X-29A.



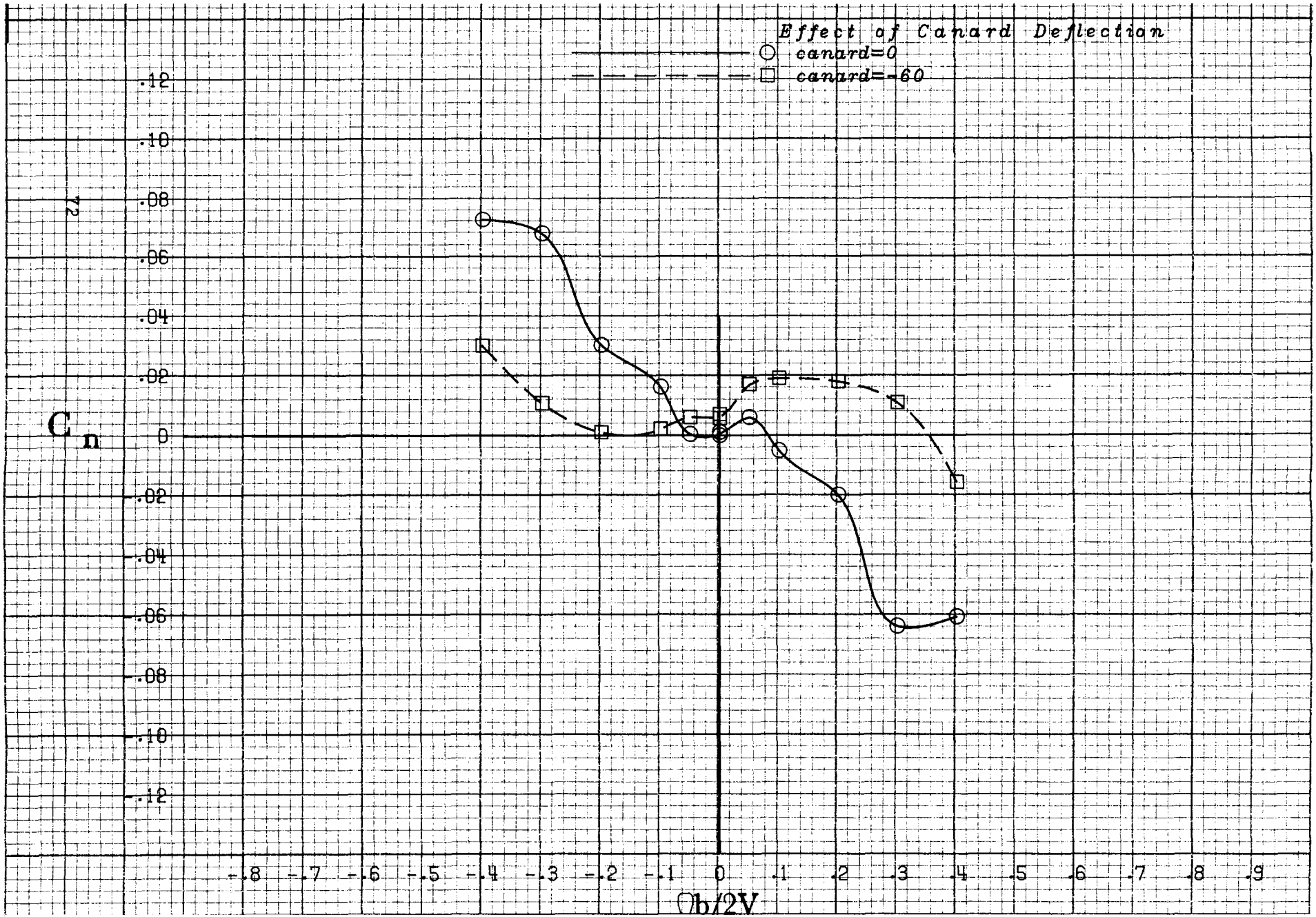
a) 30^{o} angle of attack

Figure 14.- Effect of maximum pitch control surface deflections on rotational pitching-moment coefficient for the X-29A.



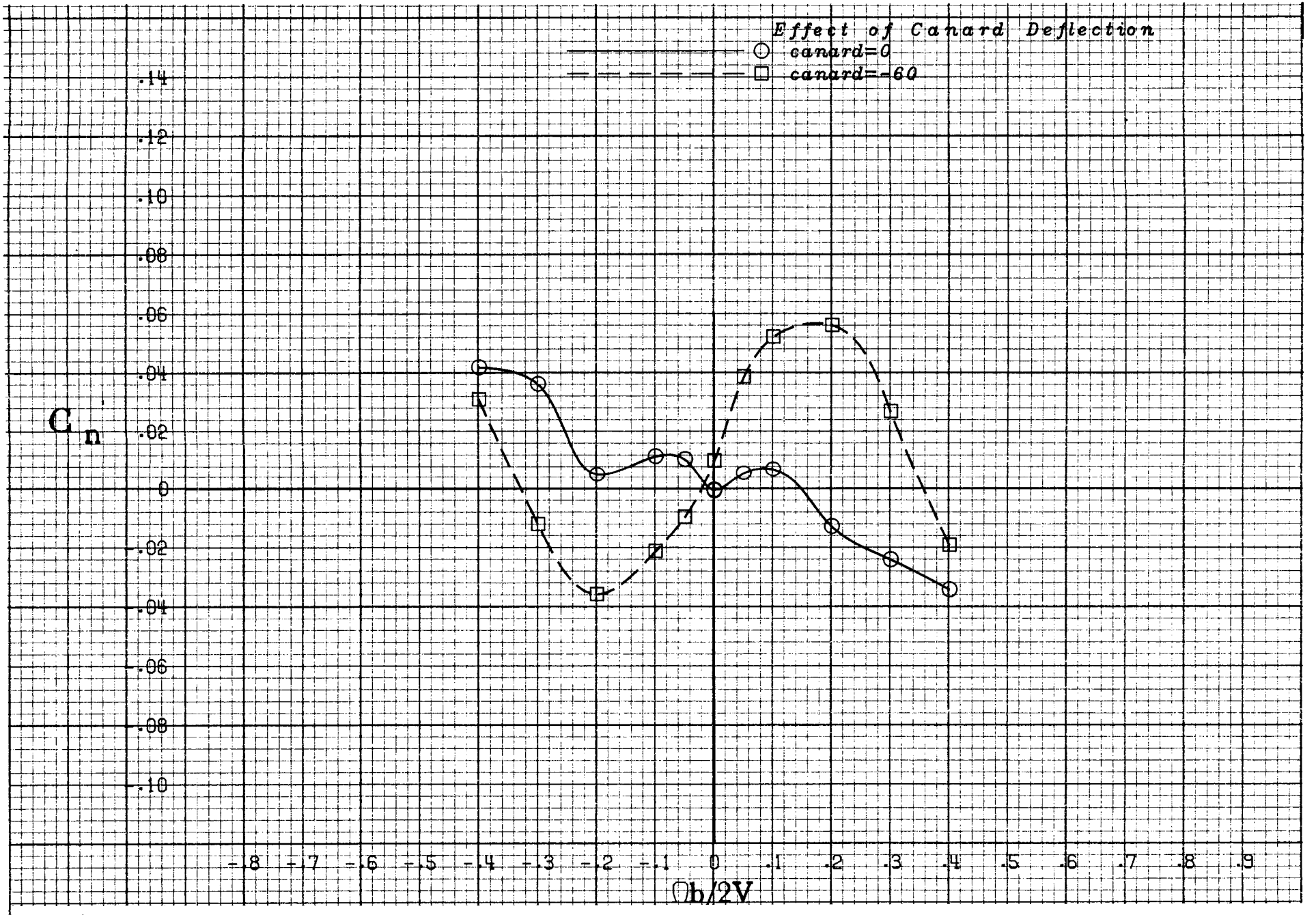
b) 50° angle of attack

Figure 14.- Concluded.



a) 35° angle of attack

Figure 15.- Effect of maximum pitch control surface deflections on rotational yawing moment coefficient for the X-29A.



b) 40° angle of attack

Figure 15.- Concluded.

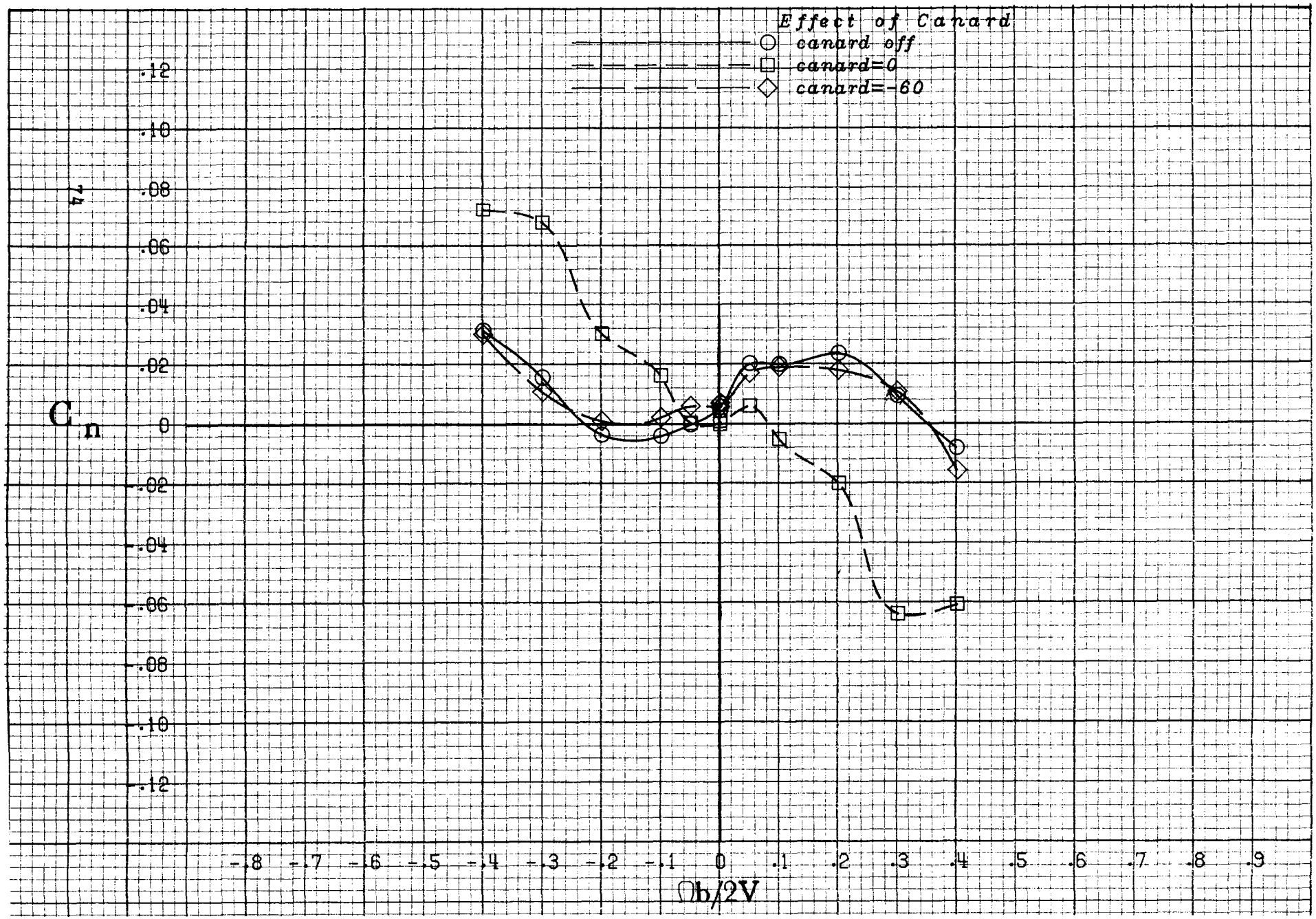


Figure 16.- Influence of the presence of the canard at 0° and -60° deflections on yawing moment coefficient for the X-29A at 35° angle of attack.

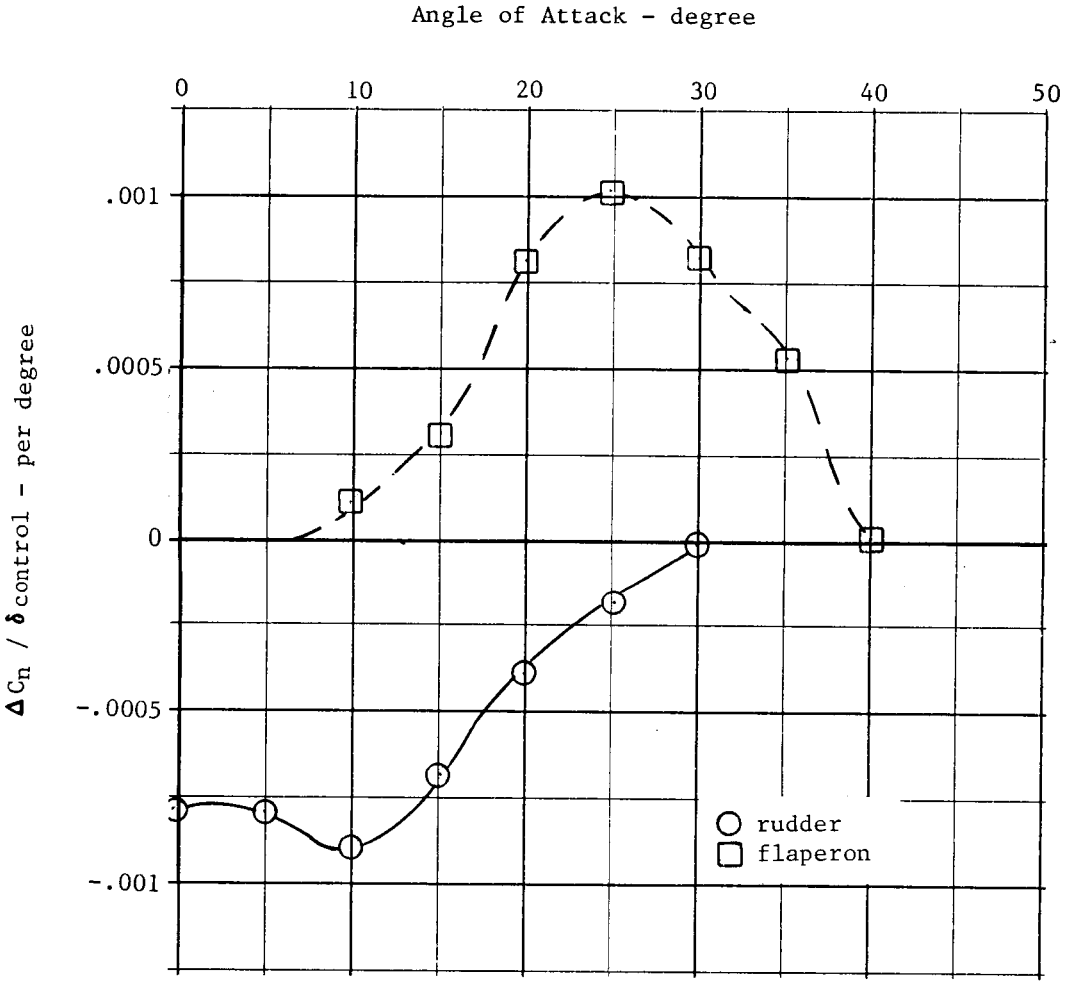


Figure 17.- Incremental yawing moment coefficient produced per unit of rudder and differential flaperon deflection as a function of angle of attack for the basic X-29A.

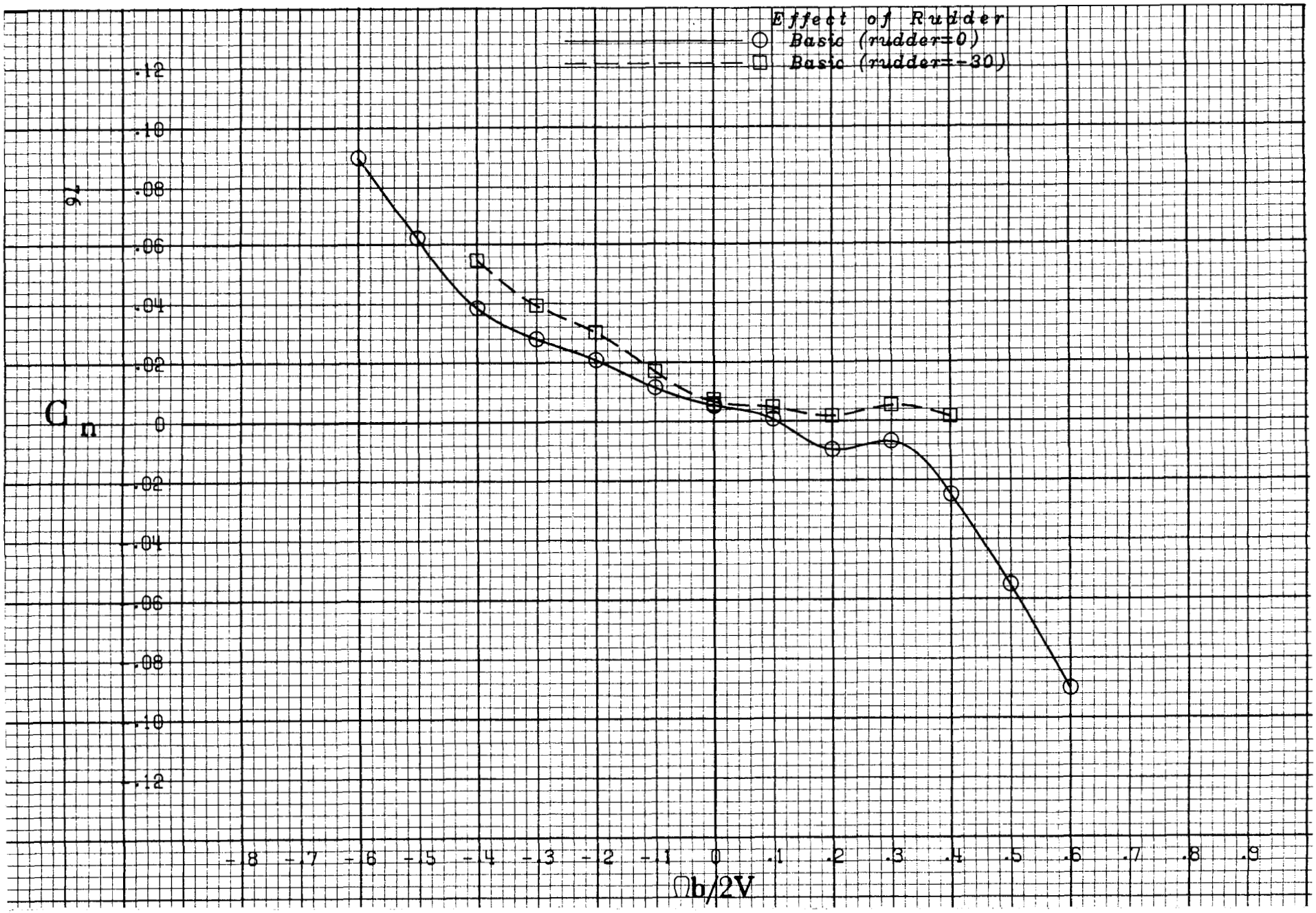


Figure 18.- Effect of rotation rate on rudder effectiveness at 30° angle of attack for the X-29A.

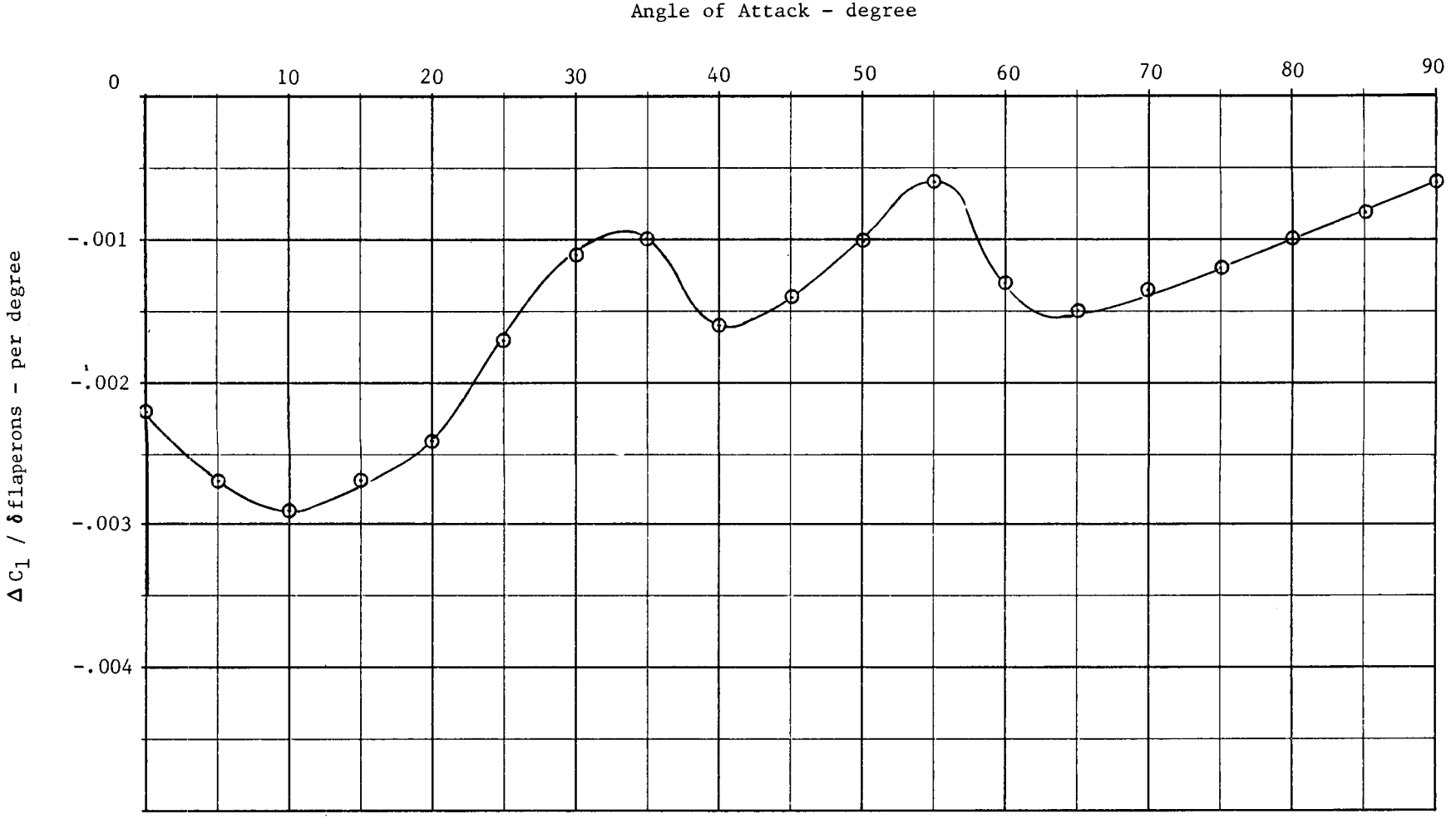


Figure 19.- Incremental rolling moment coefficient produced per unit of differential flaperon deflection for the basic X-29A

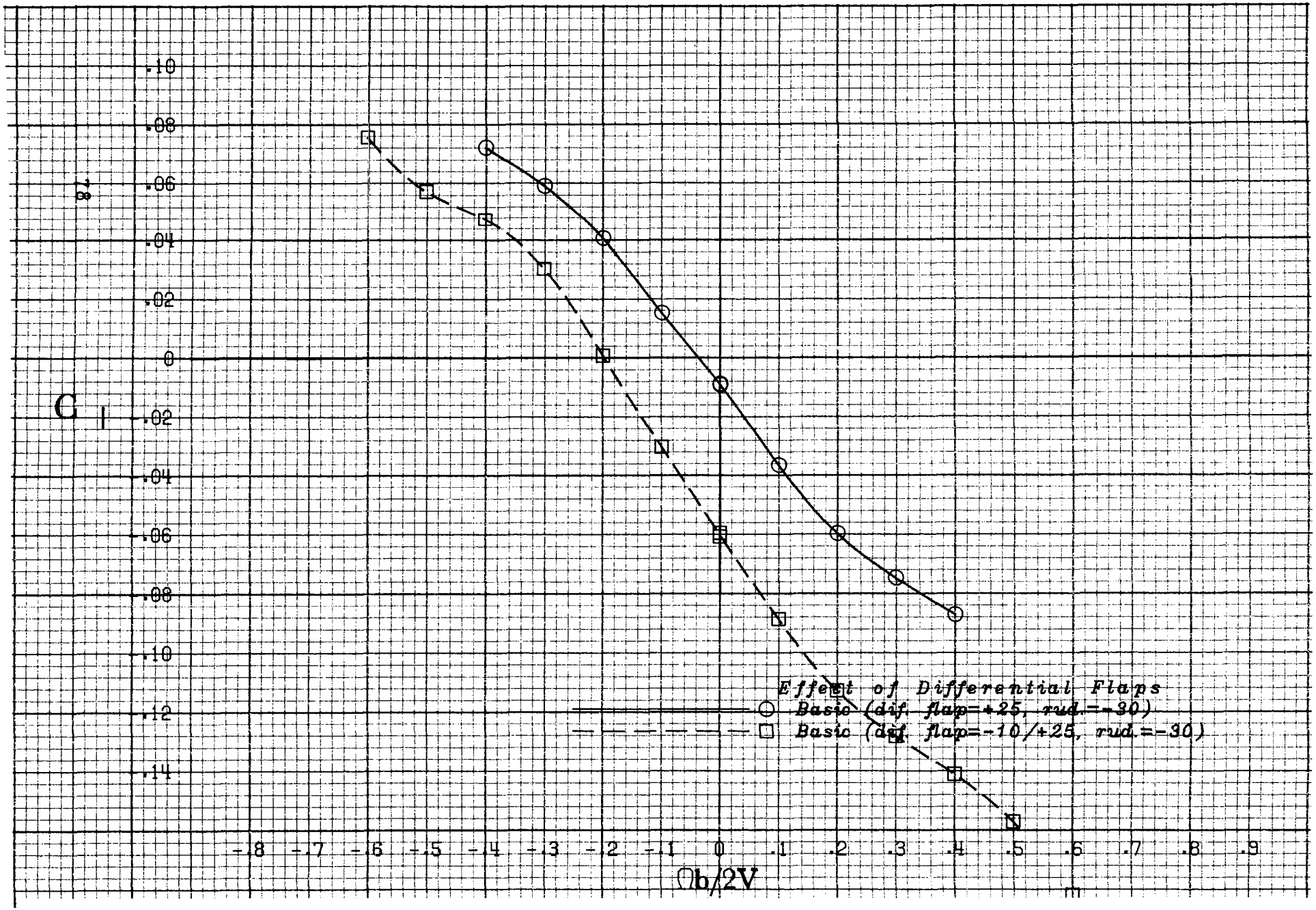
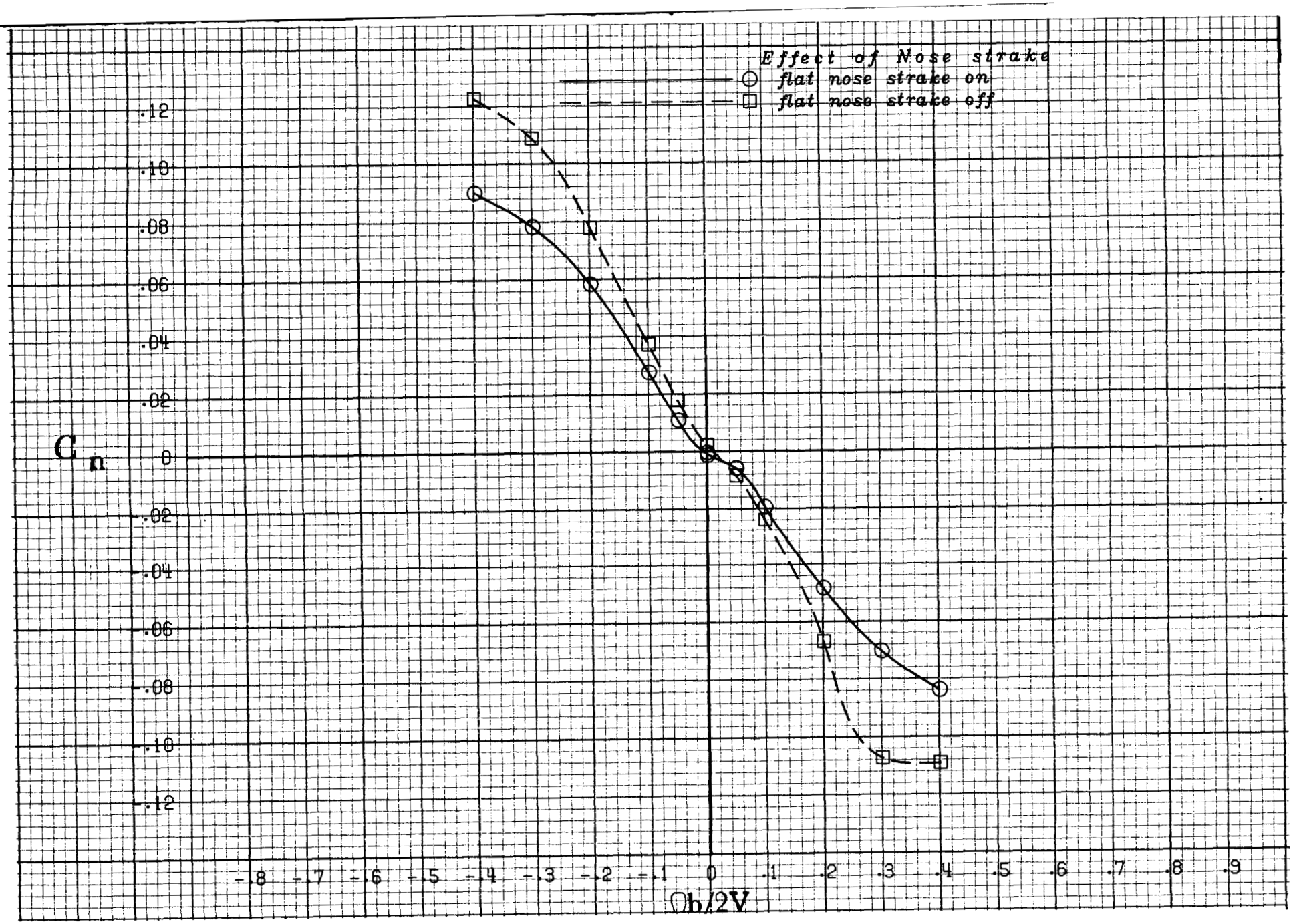
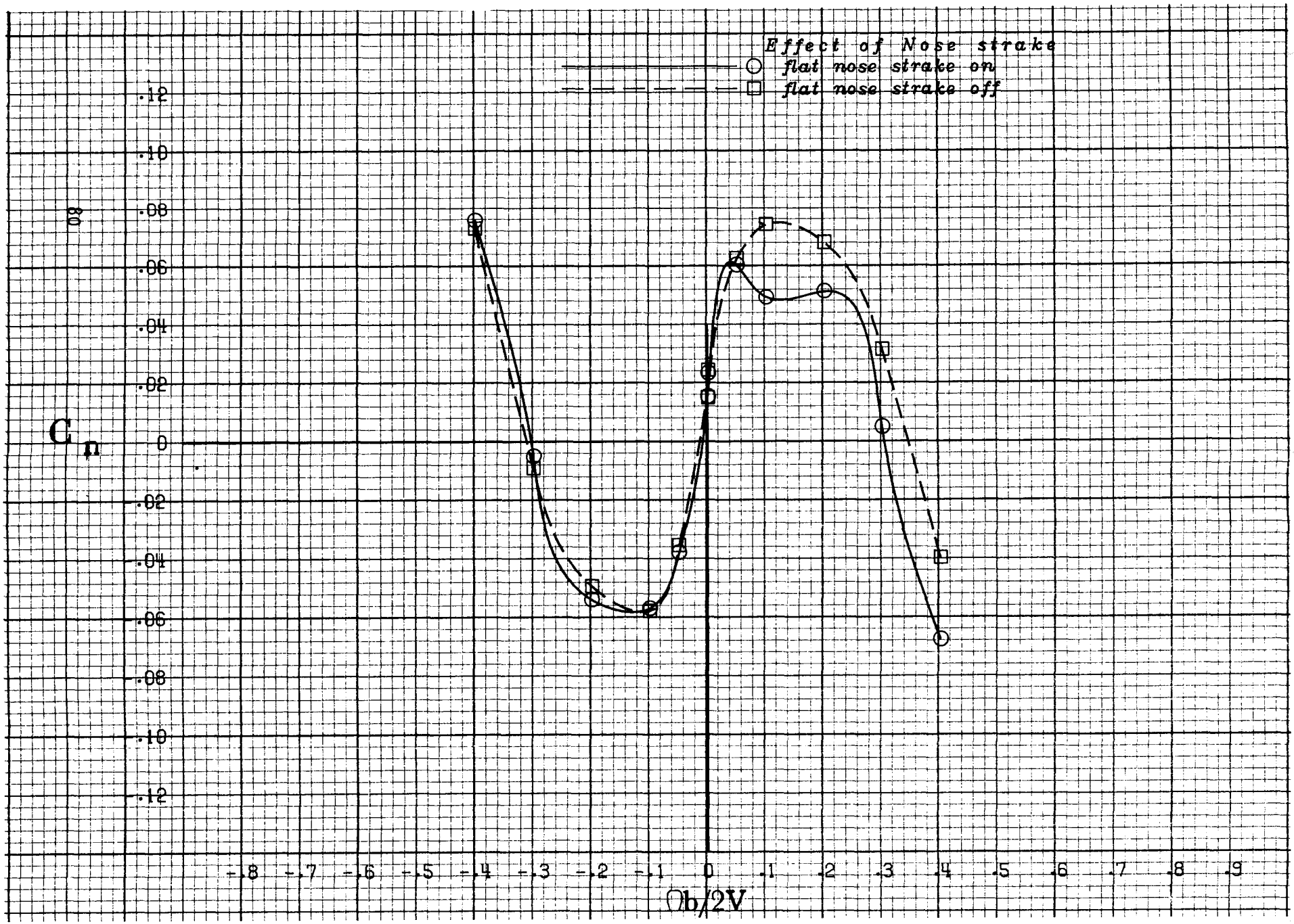


Figure 20.- Effect of rotation rate on differential flaperon effectiveness at 10° angle of attack for the X-29A.



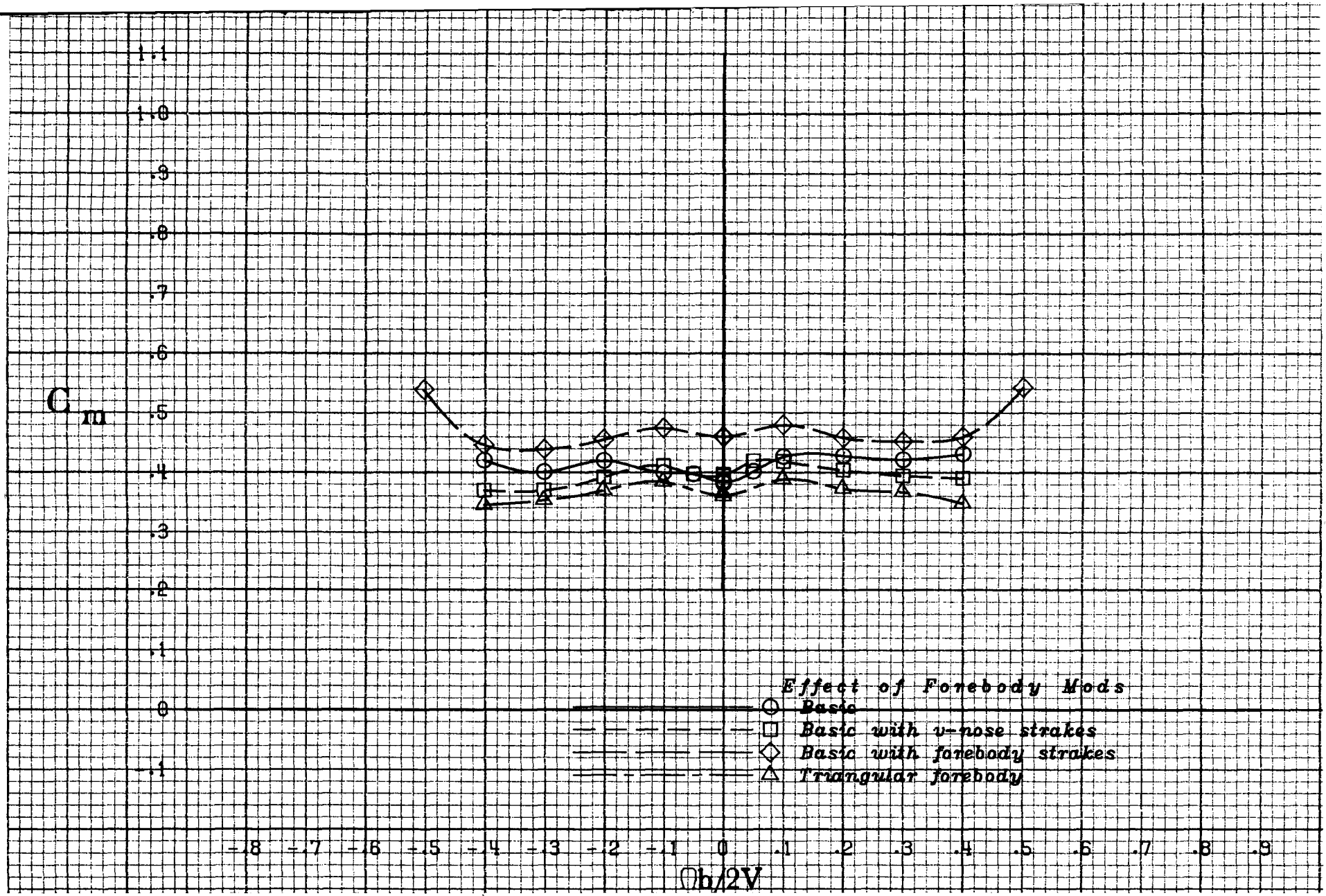
a) 30° angle of attack

Figure 21.- Influence of basic X-29A nose strakes on the rotational yawing-moment coefficient.



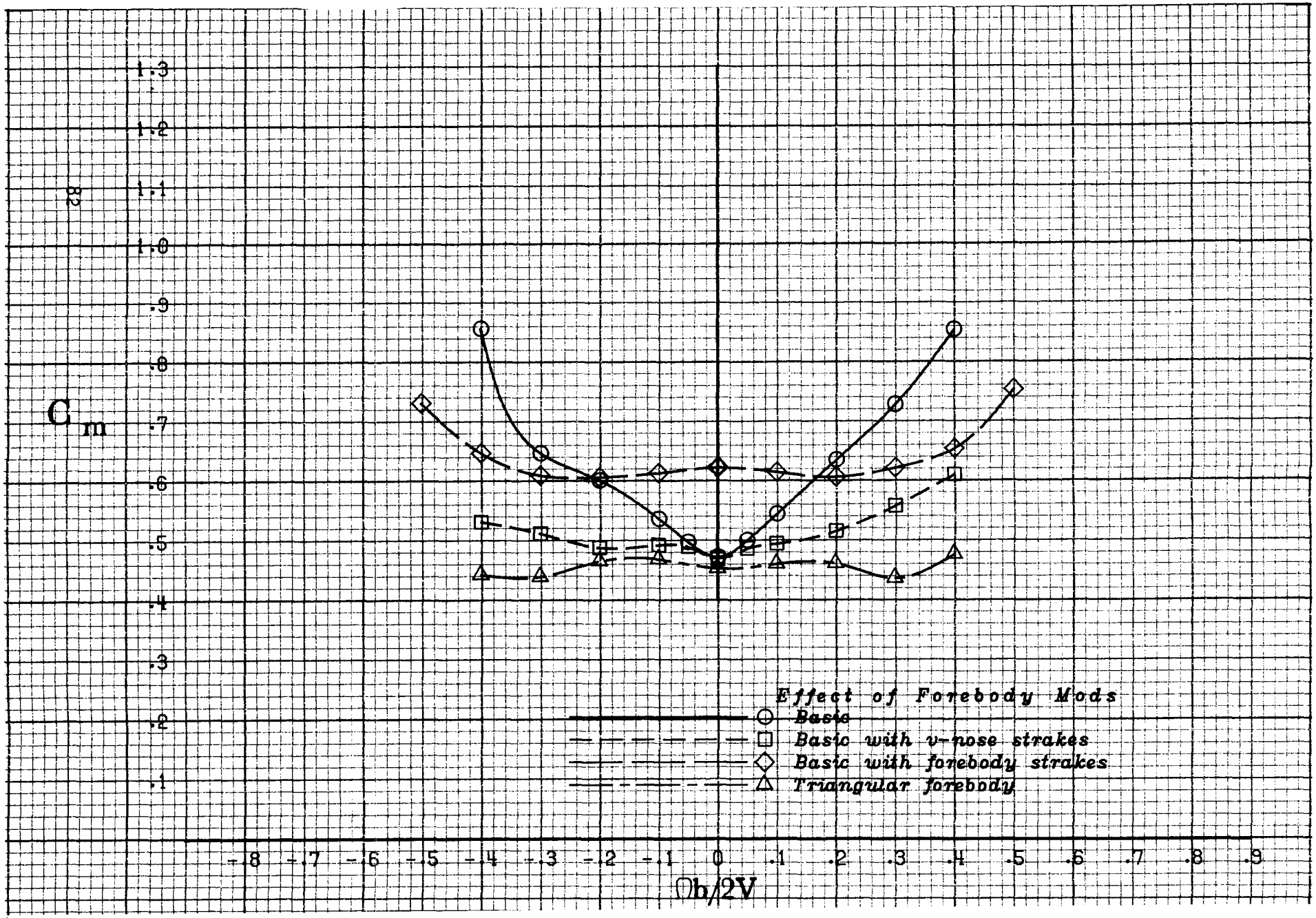
b) 50° angle of attack

Figure 21.- Concluded.



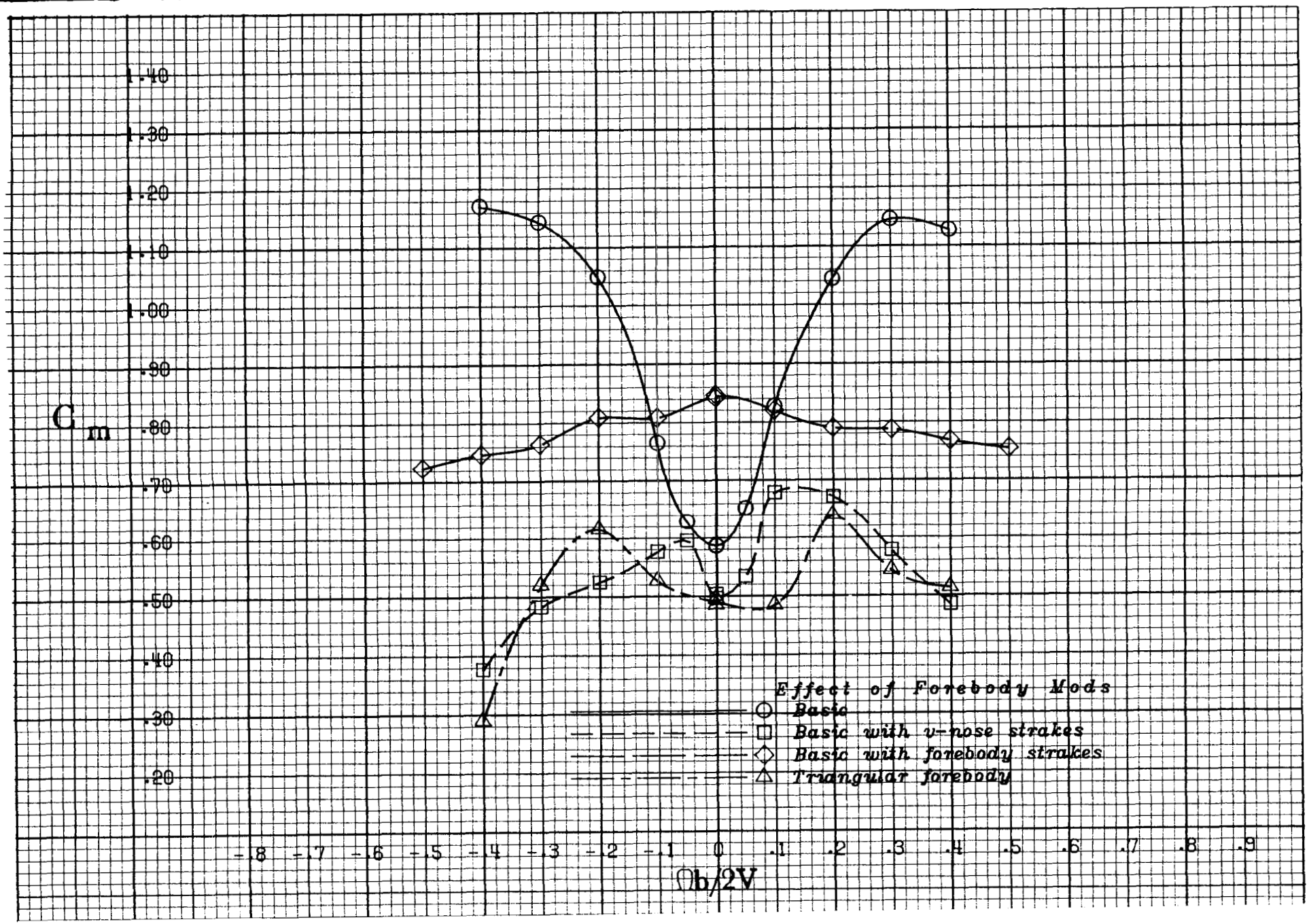
(a) $\alpha = 20^{\circ}$

Figure 22.- Effect of forebody modifications to the X-29A on pitching moment coefficient as a function of rotation rate.



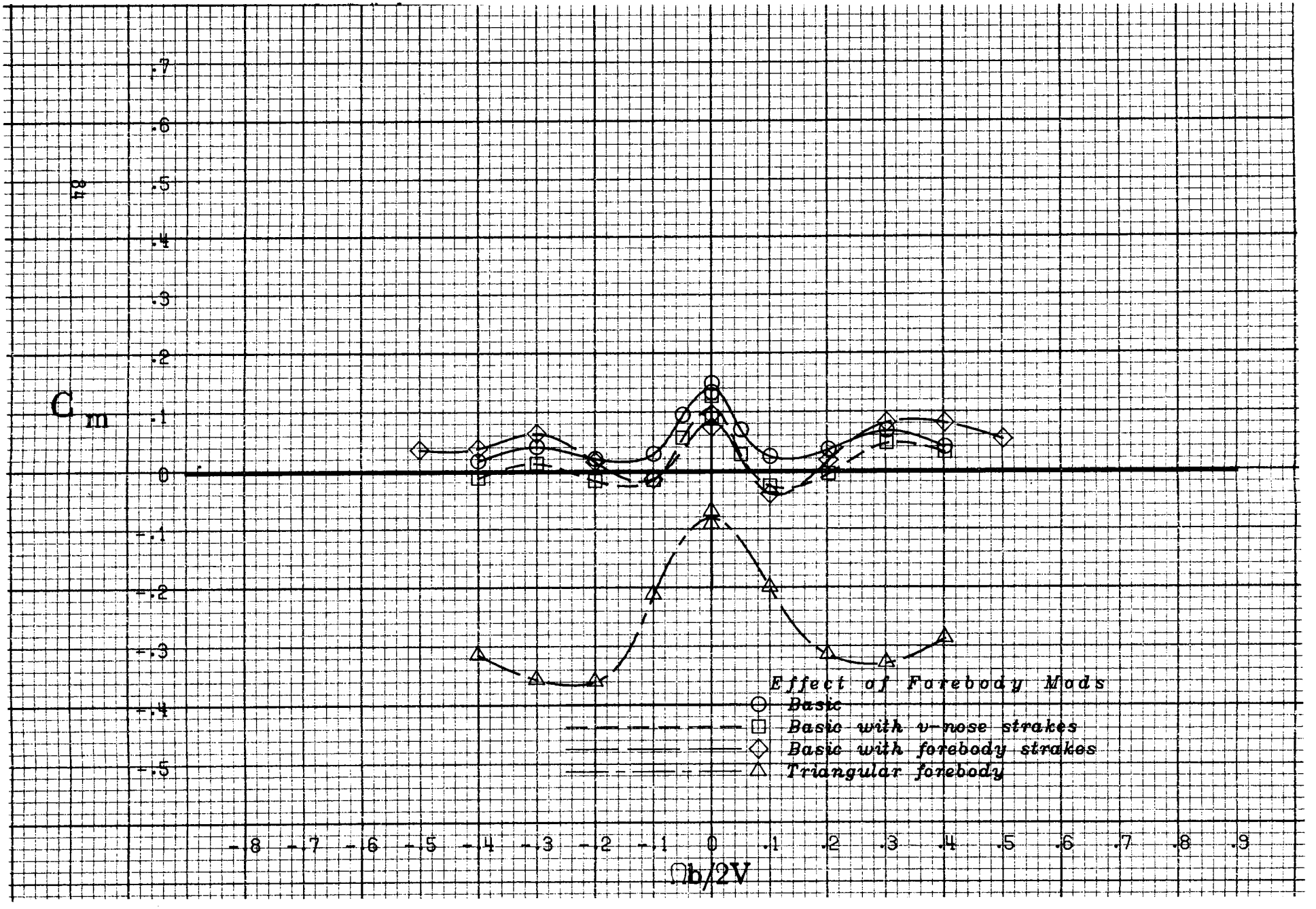
(b) $\alpha = 30^{\circ}$

Figure 22.- Continued.



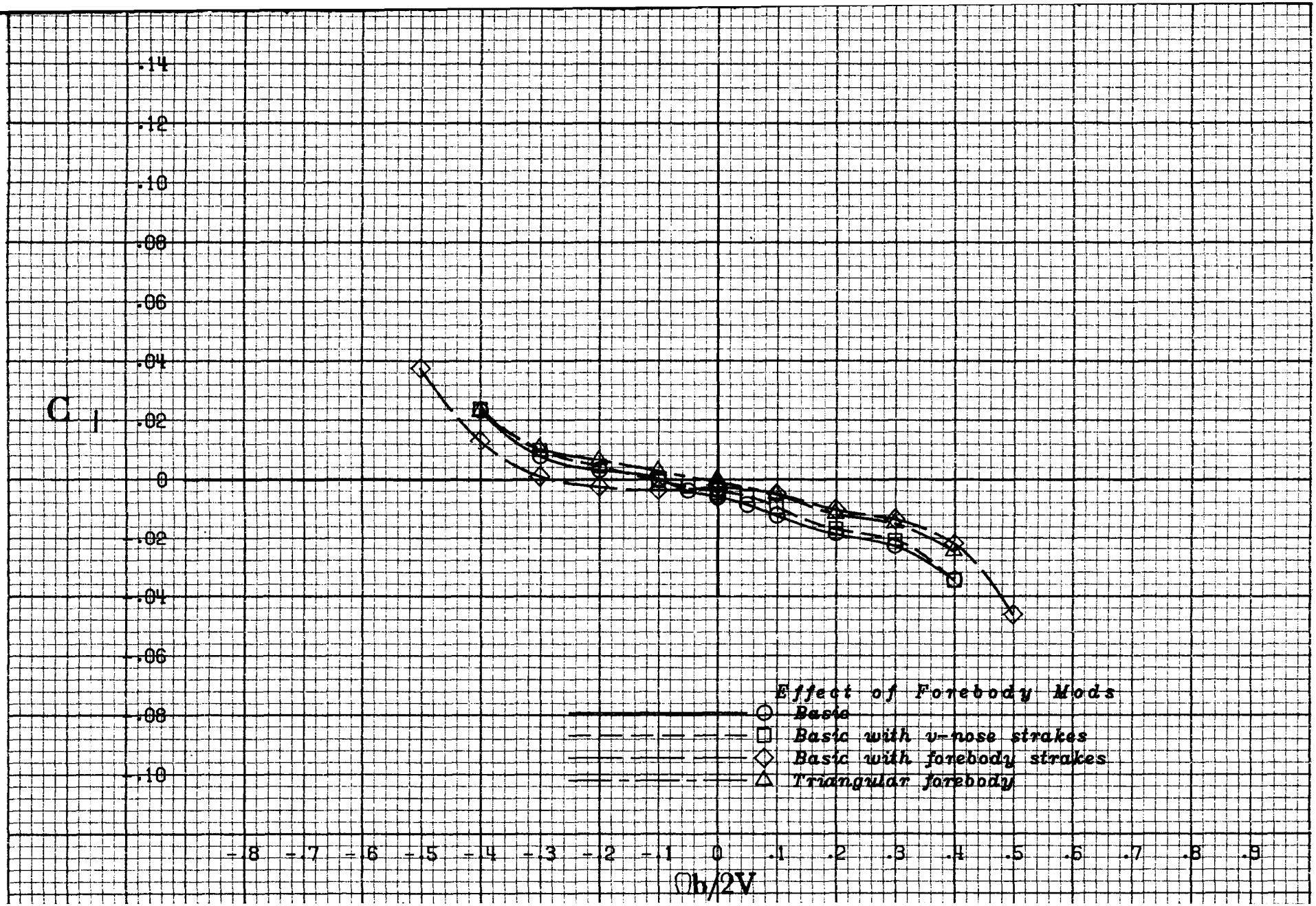
(c) $\alpha = 50^{\circ}$

Figure 22.- Continued.



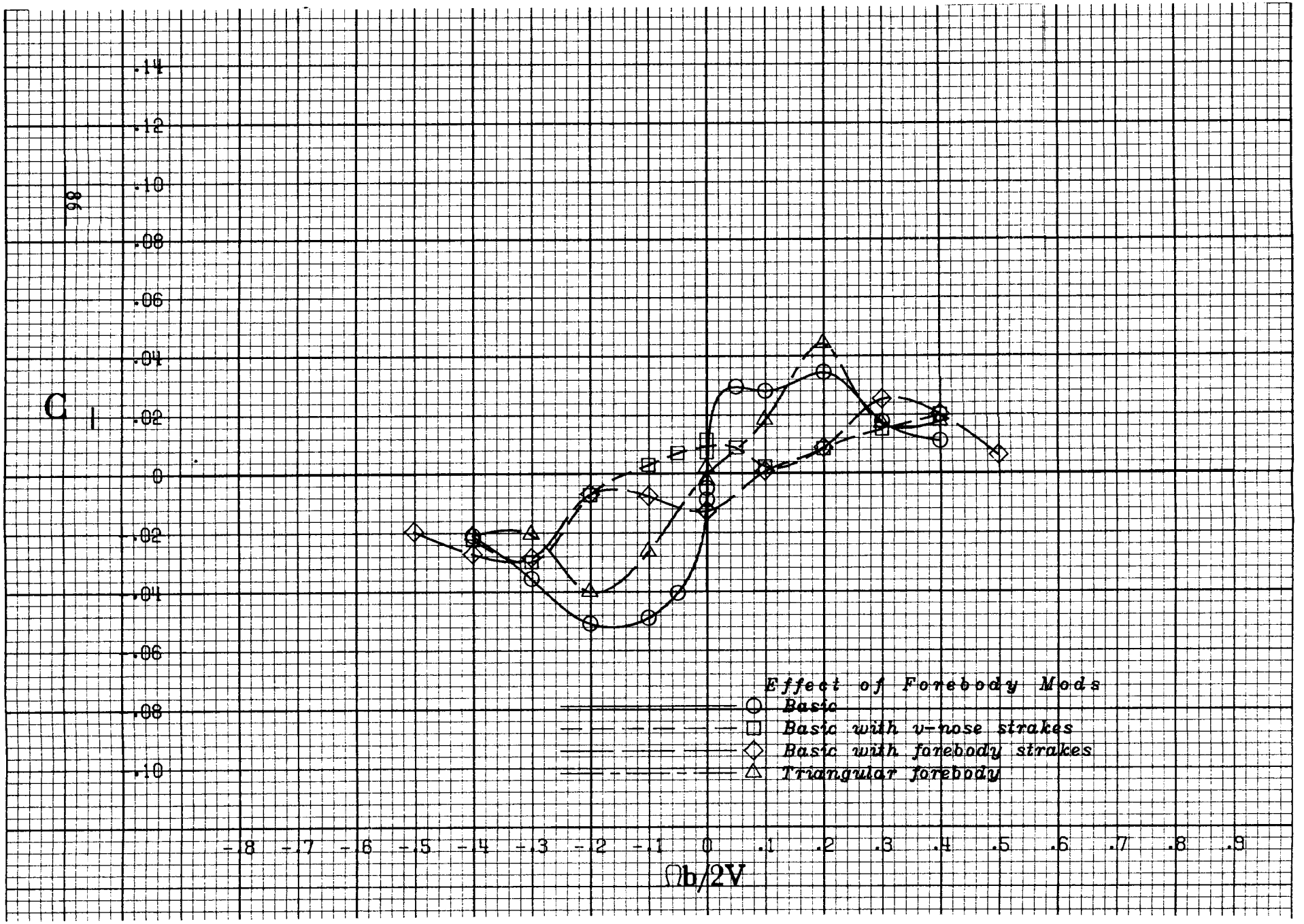
(d) $\alpha = 80^{\circ}$

Figure 22.- Concluded.



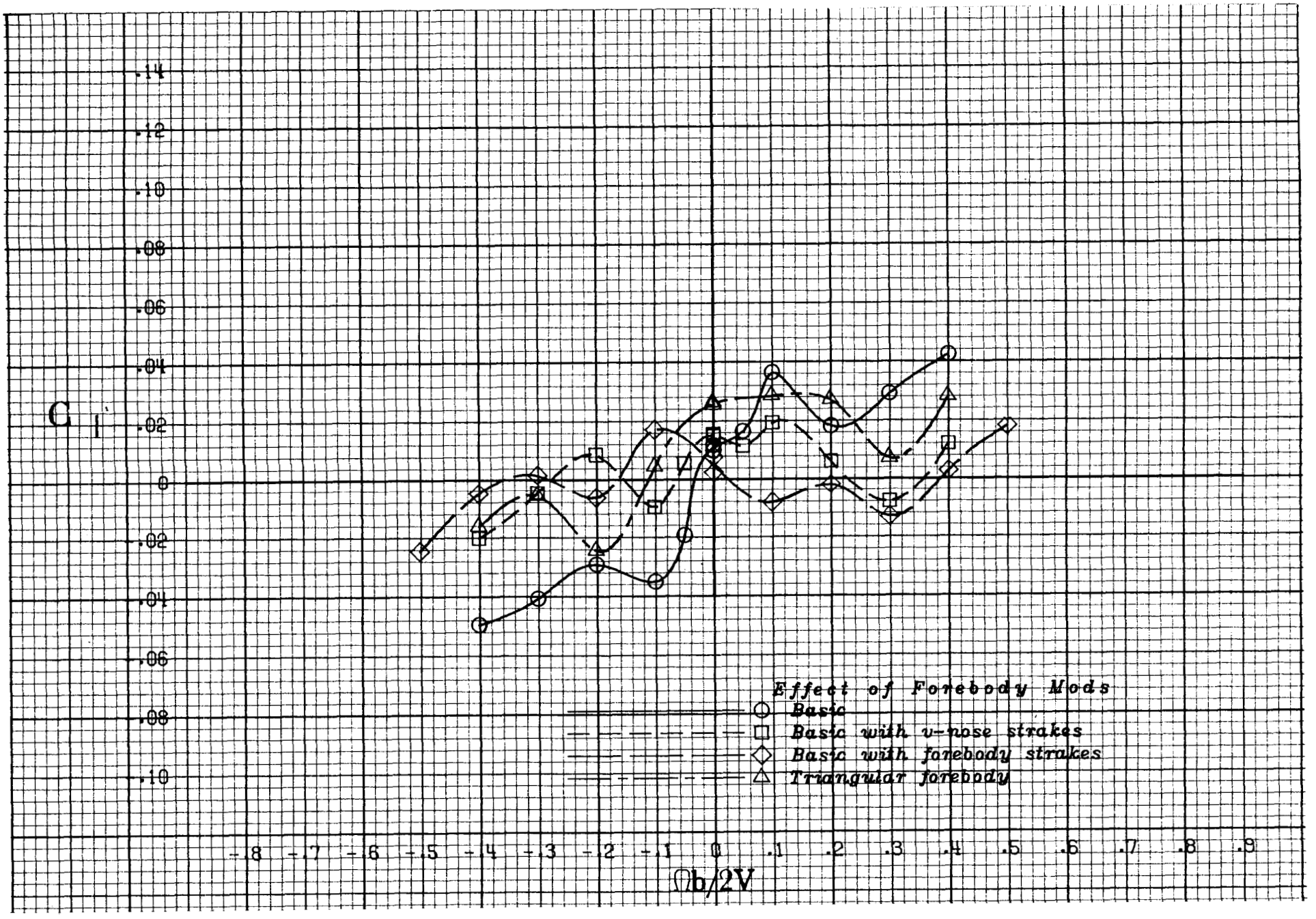
(a) $\alpha = 20^{\circ}$

Figure 23.- Effect of forebody modifications to the X-29A on rolling moment coefficient as a function of rotation rate.



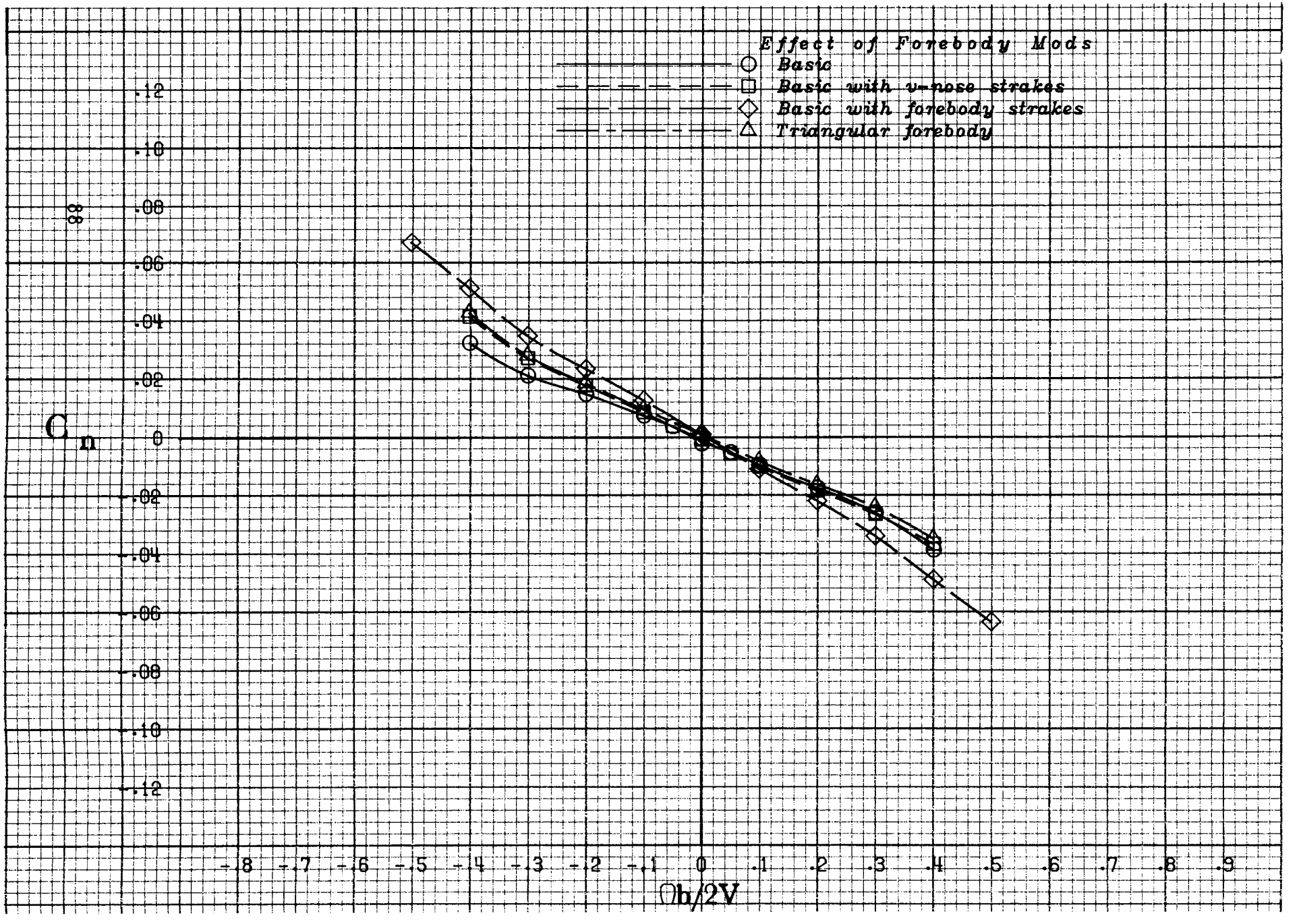
(b) $\alpha = 40^{\circ}$

Figure 23.- Continued.



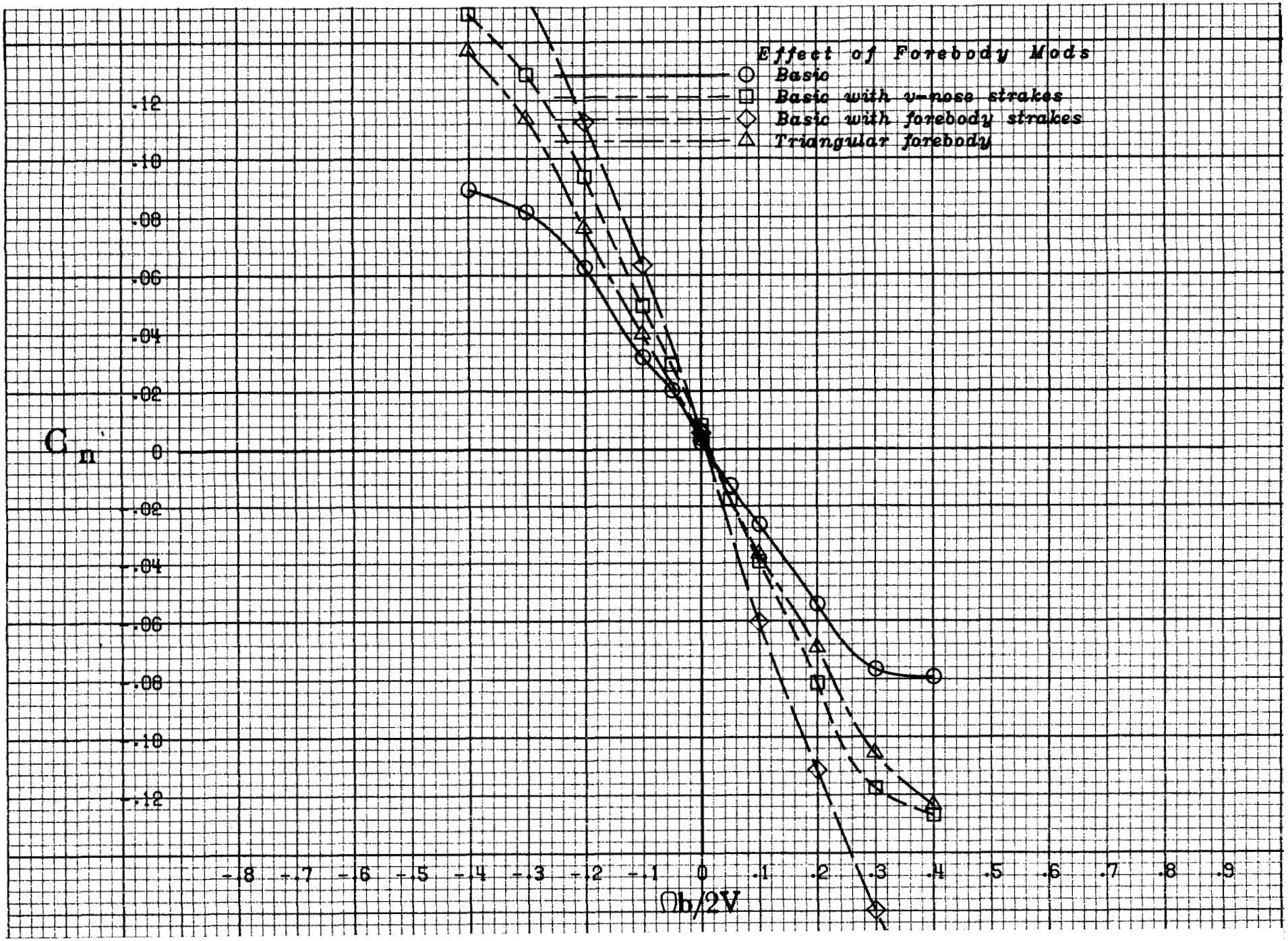
(c) $\alpha = 50^{\circ}$

Figure 23.- Concluded.



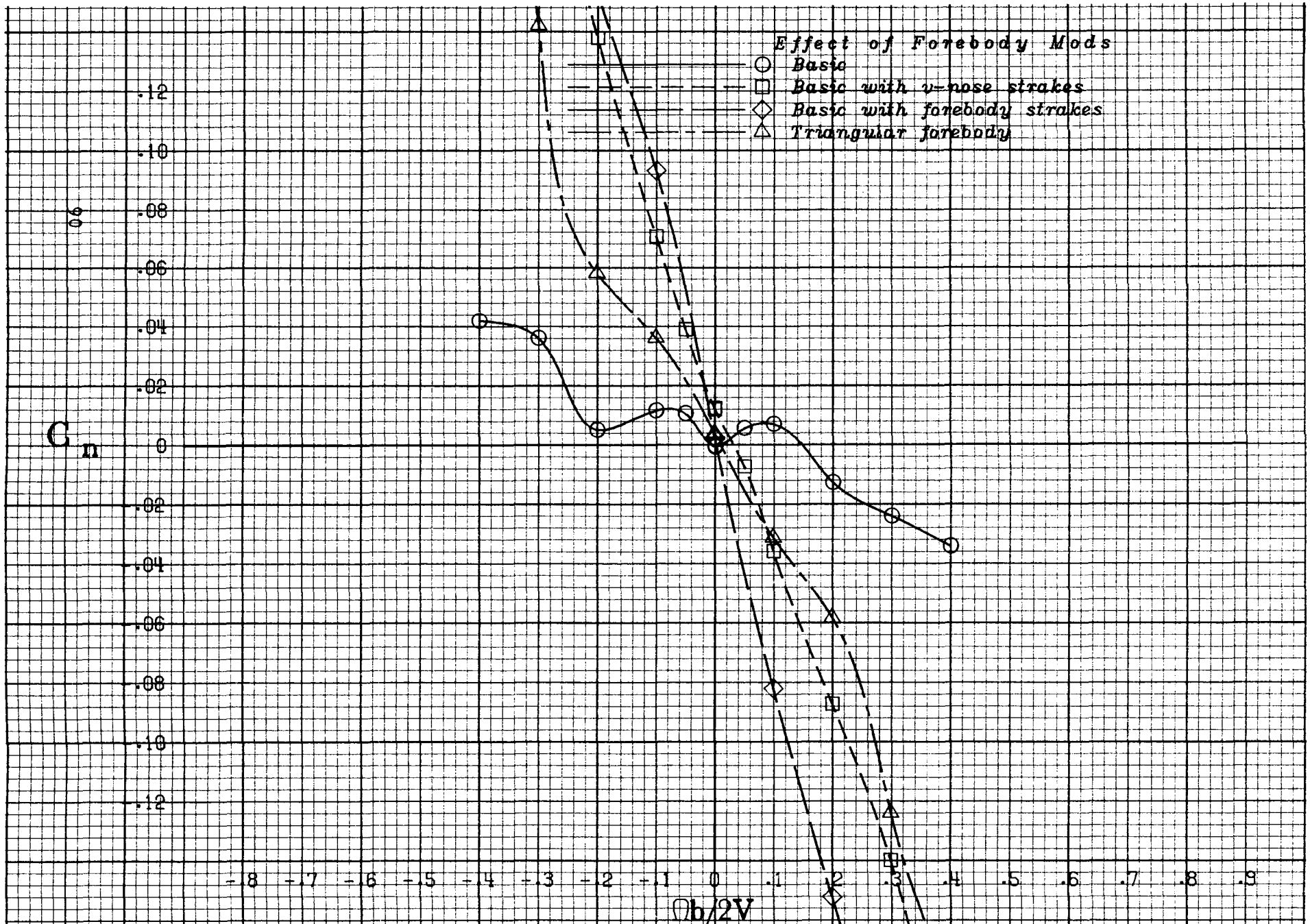
(a) $\alpha = 10^{\circ}$

Figure 24.- Effect of forebody modifications to the X-29A on yawing moment coefficient as a function of rotation rate.



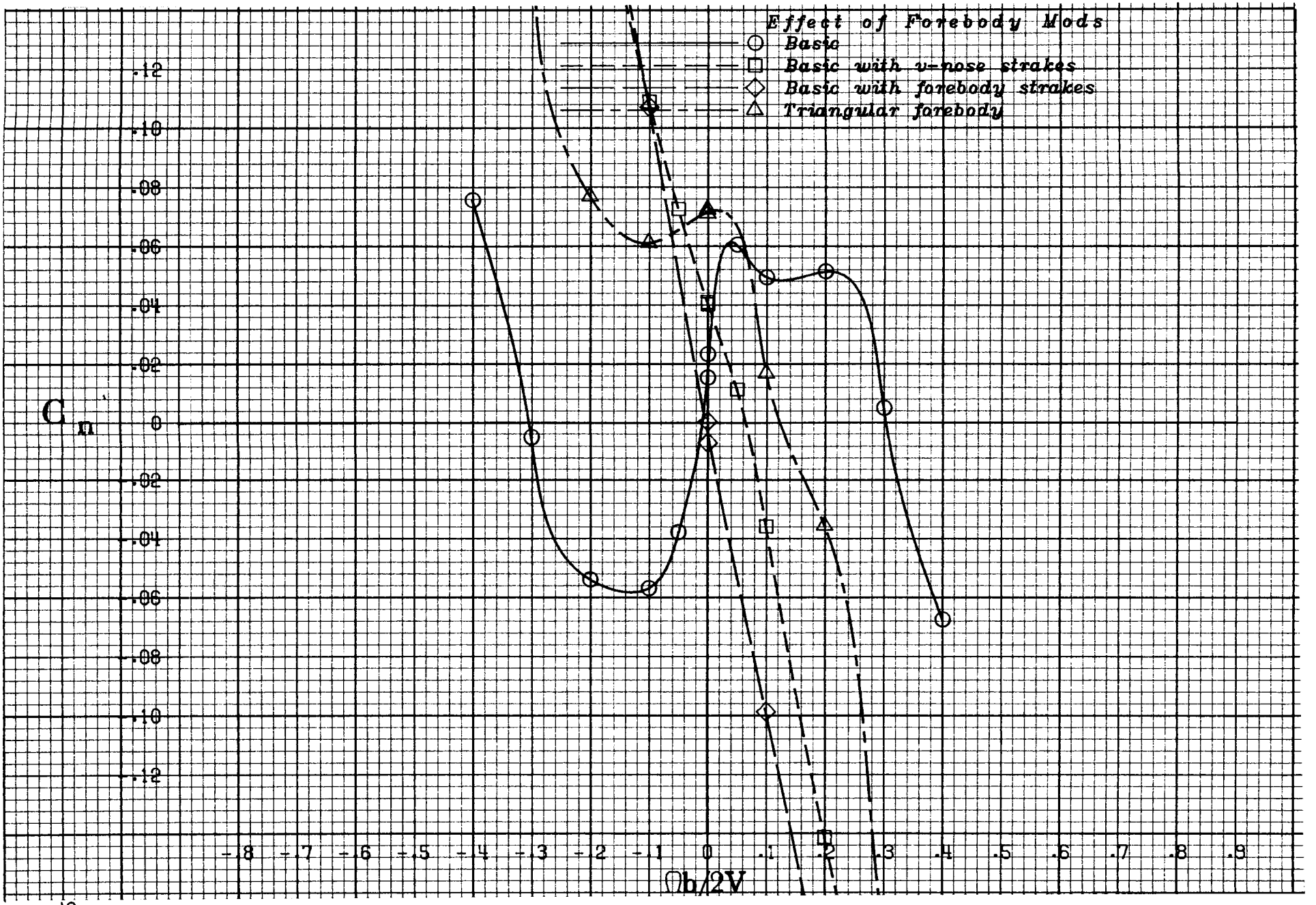
(b) $\alpha = 25^{\circ}$

Figure 24.- Continued.



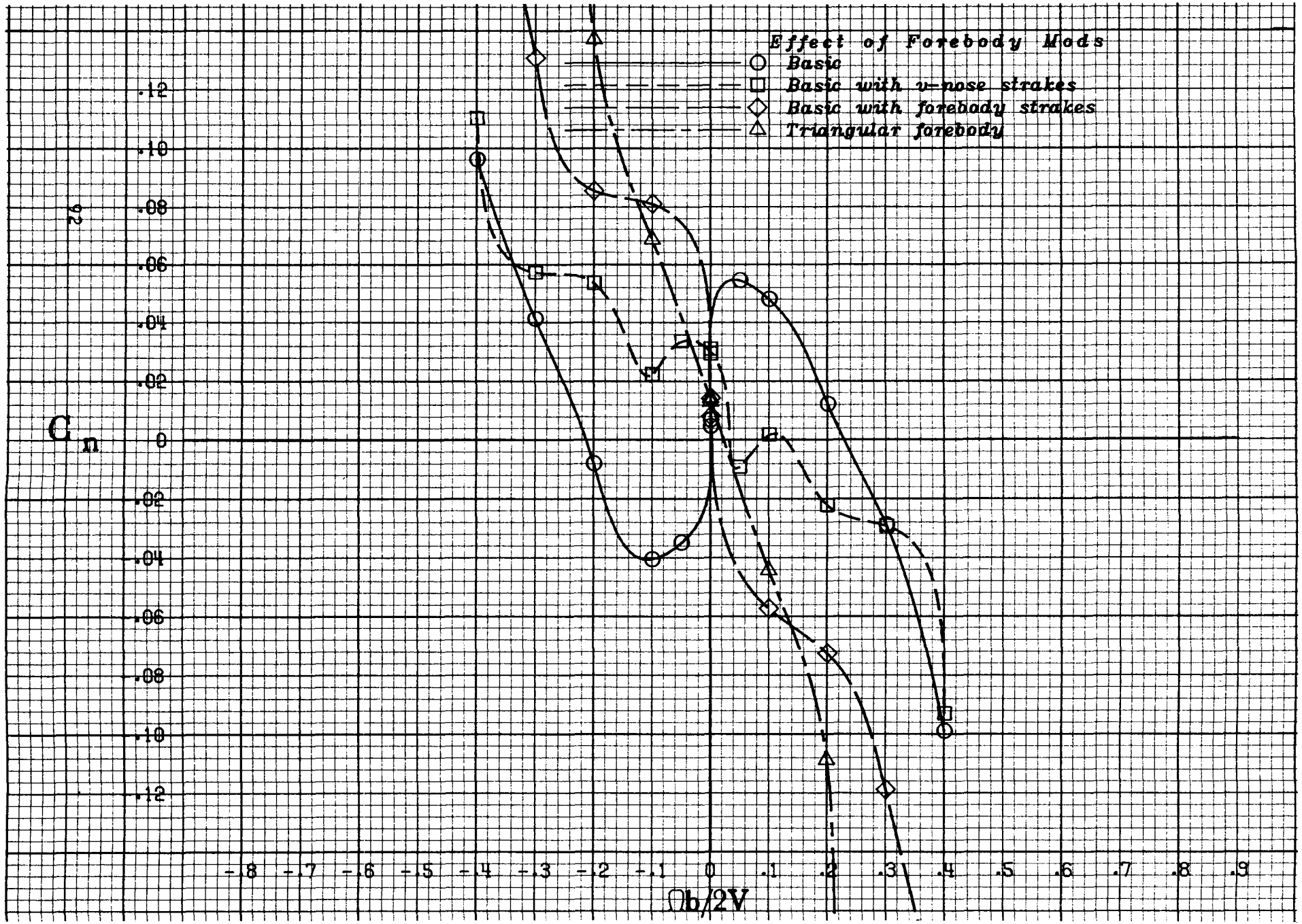
(c) $\alpha = 40^{\circ}$

Figure 24.- Continued.



(d) $\alpha = 50^{\circ}$

Figure 24.- Continued.

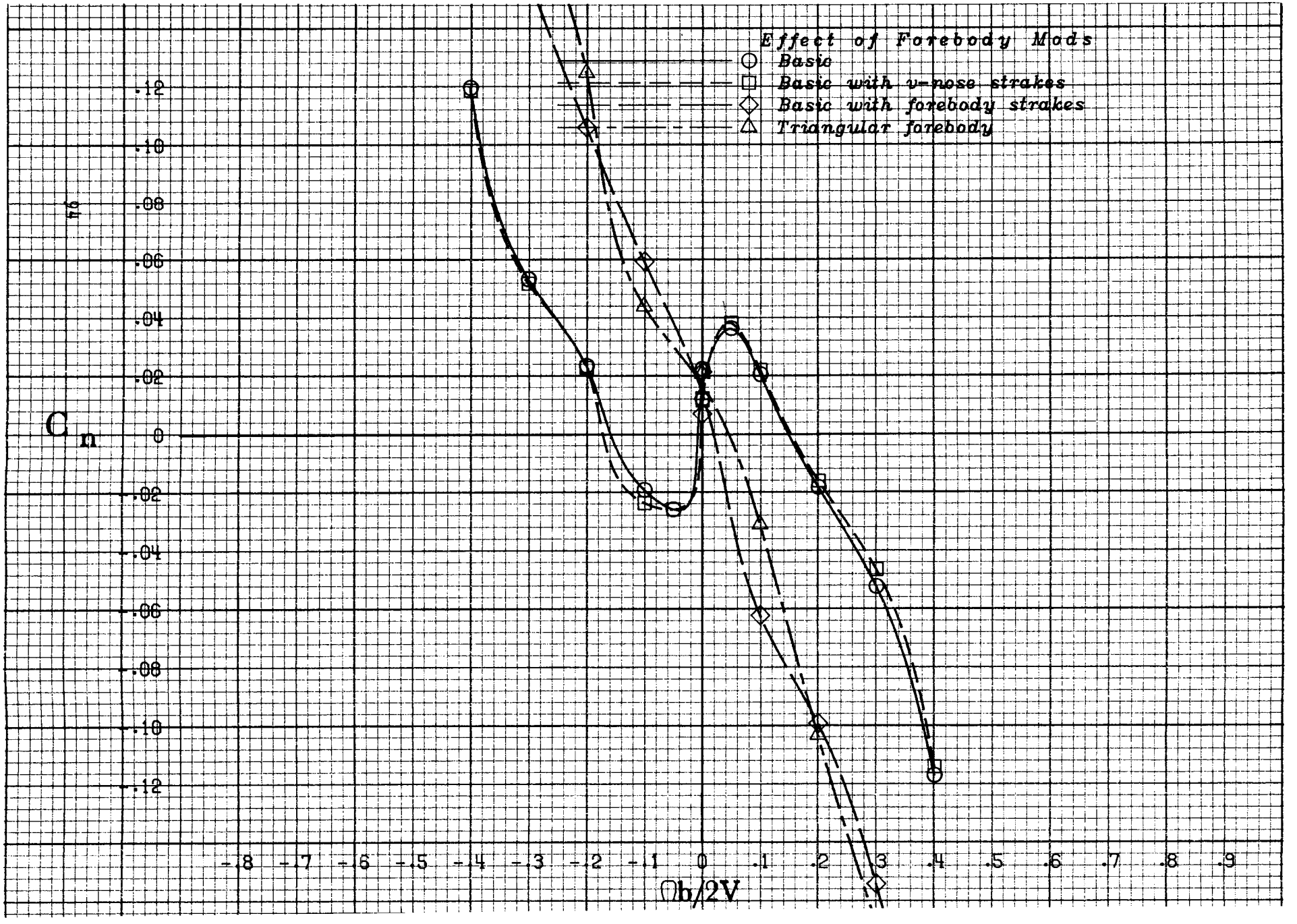


(e) $\alpha = 70^{\circ}$

Figure 24.- Continued.

(f) $\alpha = 80^\circ$

Figure 24.- Continued.



(g) $\alpha = 90^{\circ}$

Figure 24.- Concluded.

APPENDIX

The following tabulated data's configuration is described by a series of abbreviations that refer to various airplane components, sideslip angle, and control deflection. The table below describes the abbreviations used.

ABBREVIATION	DESCRIPTION
B	Body alone
BO	Body minus nose strakes
B1	Body with V-nose strakes (figure 4)
B2	Body with large forebody strakes (figure 4)
B3	Body with triangular forebody (figure 4)
C	Canard
W	Wing
V	Vertical tail
p	sideslip angle
f	symmetric flaperon deflection
df	differential flaperon deflection
bf	body flap deflection
c	canard deflection
r	rudder deflection

***** X-29A ROTARY BALANCE DATA *****

9B

BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.40	.022	.00	-.060	.027	.0009	.0107	-.40
	-.30	.018	.02	-.051	.006	.0007	.0068	-.30
	-.20	.016	.06	-.037	-.011	.0005	.0041	-.20
	-.10	.014	.08	-.025	-.018	.0003	.0026	-.10
	-.05	.013	.09	-.023	-.021	.0003	.0023	-.05
	0.00	.015	.06	-.033	-.020	.0003	.0017	0.00
	0.00	.014	.07	-.034	-.027	.0003	.0017	0.00
	.05	.013	.09	-.022	-.030	-.0000	.0020	.05
	.10	.012	.08	-.025	-.028	-.0001	.0025	.10
	.20	.015	.06	-.037	-.023	-.0004	.0045	.20
	.30	.017	.02	-.054	-.016	-.0007	.0073	.30
	.40	.020	.00	-.066	-.014	-.0010	.0093	.40
5	-.40	.019	.05	.053	-.004	.0004	.0164	-.40
	-.30	.016	.05	.051	-.017	.0004	.0107	-.30
	-.20	.012	.07	.064	-.025	.0005	.0061	-.20
	-.10	.008	.09	.075	-.028	.0004	.0032	-.10
	-.05	.007	.09	.078	-.030	.0004	.0023	-.05
	0.00	.013	.04	.050	-.027	.0002	.0017	0.00
	0.00	.015	.03	.049	-.040	.0002	.0011	0.00
	.05	.011	.07	.061	-.028	.0002	.0013	.05
	.10	.011	.06	.058	-.027	.0001	.0014	.10
	.20	.014	.05	.051	-.020	-.0001	.0024	.20
	.30	.018	.03	.044	-.012	-.0003	.0044	.30
	.40	.019	.03	.052	.001	-.0005	.0069	.40
10	-.40	.021	.07	.147	-.026	-.0001	.0203	-.40
	-.30	.019	.07	.133	-.030	.0000	.0135	-.30
	-.20	.014	.09	.137	-.038	.0001	.0078	-.20
	-.10	.009	.11	.147	-.038	.0001	.0041	-.10
	-.05	.008	.11	.150	-.038	.0001	.0028	-.05
	0.00	.013	.08	.133	-.036	.0001	.0015	0.00
	0.00	.012	.08	.134	-.035	.0001	.0015	0.00
	.05	.006	.11	.151	-.030	.0001	.0013	.05
	.10	.008	.10	.149	-.028	.0000	.0011	.10
	.20	.013	.09	.138	-.017	-.0000	.0013	.20
	.30	.019	.06	.135	-.003	-.0001	.0025	.30
	.40	.020	.06	.145	.012	-.0002	.0047	.40
15	-.40	.022	.13	.238	-.043	-.0000	.0232	-.40
	-.30	.021	.11	.213	-.051	-.0002	.0162	-.30
	-.20	.015	.13	.212	-.055	-.0002	.0096	-.20
	-.10	.010	.14	.217	-.049	-.0002	.0051	-.10
	-.05	.008	.14	.221	-.045	-.0000	.0033	-.05
	0.00	.018	.11	.201	-.039	-.0000	.0019	0.00
	0.00	.017	.11	.201	-.026	-.0000	.0022	0.00
	.05	.007	.14	.222	-.033	-.0001	.0007	.05
	.10	.008	.14	.220	-.027	-.0000	.0002	.10
	.20	.015	.12	.212	-.009	.0000	.0006	.20
	.30	.021	.11	.216	.010	-.0001	.0024	.30
	.40	.020	.12	.235	.027	-.0005	.0057	.40

X-29A ROTARY BALANCE DATA

9B BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
20	-.40	.023	.21	.328	-.031	.0011	.0187	-.40
	-.30	.024	.18	.282	-.027	.0007	.0102	-.30
	-.20	.016	.18	.282	-.047	.0002	.0070	-.20
	-.10	.010	.20	.279	-.049	.0001	.0042	-.10
	-.05	.009	.19	.281	-.042	.0001	.0030	-.05
	0.00	.025	.14	.259	-.047	.0001	.0022	0.00
	0.00	.024	.14	.256	-.030	.0002	.0020	0.00
	.05	.009	.19	.280	-.029	.0002	.0016	.05
	.10	.012	.19	.279	-.025	.0001	.0020	.10
	.20	.019	.17	.279	-.018	-.0001	.0042	.20
	.30	.026	.18	.288	-.018	-.0007	.0078	.30
	.40	.026	.20	.324	.008	-.0011	.0089	.40
25	-.40	.020	.31	.469	-.029	.0026	.0101	-.40
	-.30	.021	.26	.387	.011	.0019	.0043	-.30
	-.20	.013	.26	.362	-.015	.0012	.0003	-.20
	-.10	.004	.26	.353	-.050	.0006	.0012	-.10
	-.05	.002	.25	.347	-.046	.0004	.0019	-.05
	0.00	.017	.22	.325	-.050	.0002	.0027	0.00
	0.00	.015	.23	.322	-.035	.0001	.0024	0.00
	.05	.003	.25	.345	-.035	.0001	.0044	.05
	.10	.004	.26	.349	-.029	-.0002	.0074	.10
	.20	.014	.25	.360	-.043	-.0010	.0139	.20
	.30	.020	.26	.387	-.036	-.0016	.0205	.30
	.40	.016	.33	.486	.092	-.0013	.0233	.40
30	-.40	.009	.48	.688	-.168	.0015	-.0045	-.40
	-.30	.017	.37	.530	-.001	.0029	-.0080	-.30
	-.20	.008	.35	.480	-.032	.0020	-.0074	-.20
	-.10	.000	.33	.436	-.057	.0009	-.0043	-.10
	-.05	-.001	.32	.416	-.053	.0006	-.0006	-.05
	0.00	.004	.31	.393	-.045	.0001	.0023	0.00
	0.00	.004	.31	.390	-.047	.0000	.0028	0.00
	.05	-.001	.32	.411	-.046	-.0002	.0098	.05
	.10	.000	.33	.430	-.038	-.0007	.0166	.10
	.20	.008	.36	.475	-.020	-.0017	.0302	.20
	.30	.015	.41	.530	.019	-.0021	.0448	.30
	.40	.011	.48	.668	.119	-.0018	.0593	.40
35	-.40	-.001	.66	.871	-.100	.0036	-.0364	-.40
	-.30	.007	.59	.719	-.073	.0037	-.0440	-.30
	-.20	-.001	.55	.616	-.044	.0036	-.0475	-.20
	-.10	-.006	.47	.524	-.012	.0027	-.0301	-.10
	-.05	-.007	.45	.492	-.022	.0014	-.0151	-.05
	0.00	.007	.42	.458	-.031	.0000	.0038	0.00
	0.00	.016	.41	.453	-.024	.0000	.0043	0.00
	.05	-.004	.45	.479	-.066	-.0021	.0339	.05
	.10	-.003	.49	.515	-.108	-.0038	.0532	.10
	.20	.002	.58	.613	-.074	-.0049	.0707	.20
	.30	.012	.65	.696	-.129	-.0051	.0782	.30
	.40	.003	.65	.831	-.039	-.0037	.0693	.40

X-29A ROTARY BALANCE DATA

9B

BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
40	-.40	-.007	.74	.986	-.001	.0036	-.0142	-.40
	-.30	-.003	.78	.919	.088	.0063	-.0678	-.30
	-.20	-.010	.74	.822	-.013	.0057	-.0816	-.20
	-.10	-.013	.62	.664	.037	.0060	-.0753	-.10
	-.05	-.018	.58	.609	.017	.0045	-.0447	-.05
	0.00	-.016	.56	.566	-.007	.0010	-.0067	0.00
	0.00	-.005	.56	.575	-.025	.0015	-.0109	0.00
	.05	-.017	.58	.600	-.126	-.0051	.0622	.05
	.10	-.011	.62	.644	-.180	-.0064	.0886	.10
	.20	-.005	.71	.771	-.156	-.0063	.1033	.20
	.30	.002	.77	.881	-.202	-.0056	.0894	.30
	.40	-.005	.85	.991	-.231	-.0055	.0767	.40
45	-.40	-.003	.88	1.121	.029	.0001	.0579	-.40
	-.30	-.007	.91	1.111	.151	.0066	-.0645	-.30
	-.20	-.012	.90	1.018	.076	.0073	-.1052	-.20
	-.10	-.009	.80	.850	.109	.0080	-.1259	-.10
	-.05	-.014	.74	.749	.138	.0072	-.0958	-.05
	0.00	-.029	.73	.753	-.047	-.0002	.0098	0.00
	0.00	-.013	.72	.742	-.085	-.0003	.0082	0.00
	.05	-.013	.75	.720	-.222	-.0061	.0995	.05
	.10	-.013	.79	.801	-.213	-.0069	.1202	.10
	.20	-.009	.86	.957	-.220	-.0058	.1036	.20
	.30	-.003	.95	1.096	-.238	-.0048	.0839	.30
	.40	-.010	.97	1.160	-.290	-.0043	.0486	.40
50	-.40	-.046	1.07	1.300	.210	.0033	.0656	-.40
	-.30	-.031	1.00	1.218	.188	.0044	-.0161	-.30
	-.20	-.032	.99	1.125	.094	.0045	-.0542	-.20
	-.10	-.031	.93	.949	.039	.0046	-.0871	-.10
	-.05	-.032	.87	.837	.067	.0032	-.0566	-.05
	0.00	-.039	.82	.816	-.060	-.0010	.0340	0.00
	0.00	-.030	.81	.830	-.056	-.0005	.0276	0.00
	.05	-.025	.86	.831	-.184	-.0037	.0809	.05
	.10	-.031	.89	.918	-.157	-.0048	.0933	.10
	.20	-.027	.99	1.100	-.248	-.0037	.0668	.20
	.30	-.025	1.04	1.211	-.266	-.0033	.0389	.30
	.40	-.040	1.09	1.294	-.294	-.0030	.0001	.40
55	-.40	-.053	1.15	1.204	.208	.0021	.1463	-.40
	-.30	-.045	1.14	1.249	-.004	.0045	.0274	-.30
	-.20	-.054	1.08	1.188	-.004	.0039	-.0099	-.20
	-.10	-.048	1.00	1.028	.037	.0038	-.0589	-.10
	-.05	-.038	.96	.907	.033	.0026	-.0528	-.05
	0.00	-.011	.91	.906	-.107	-.0002	.0178	0.00
	0.00	-.028	.90	.889	-.109	-.0003	.0218	0.00
	.05	-.033	.91	.859	-.179	-.0027	.0602	.05
	.10	-.048	1.01	1.013	-.184	-.0024	.0498	.10
	.20	-.055	1.08	1.163	-.183	-.0034	.0168	.20
	.30	-.052	1.15	1.249	-.075	-.0036	-.0014	.30
	.40	-.054	1.14	1.137	-.235	-.0011	-.1037	.40

X-29A ROTARY BALANCE DATA

9B BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
60	-.40	-.015	1.17	1.006	.149	.0012	.0988	-.40
	-.30	-.040	1.19	1.155	.144	.0026	.1051	-.30
	-.20	-.046	1.13	1.058	-.014	.0037	.0059	-.20
	-.10	-.067	1.13	1.052	-.004	.0041	-.0471	-.10
	-.05	-.059	1.06	.951	.019	.0032	-.0498	-.05
	0.00	-.051	1.05	.981	-.115	.0003	.0086	0.00
	0.00	-.031	1.04	.974	-.142	.0001	.0133	0.00
	.05	-.057	1.07	.948	-.162	-.0020	.0426	.05
	.10	-.064	1.12	1.035	-.125	-.0027	.0360	.10
	.20	-.054	1.15	1.112	-.114	-.0027	.0021	.20
	.30	-.034	1.18	1.083	-.261	-.0017	-.0566	.30
	.40	-.015	1.17	.985	-.220	-.0001	-.0892	.40
65	-.40	.006	1.15	.759	.092	.0012	.0735	-.40
	-.30	-.027	1.19	.910	.118	.0008	.0996	-.30
	-.20	-.043	1.16	.967	.028	.0028	.0195	-.20
	-.10	-.056	1.12	.976	-.033	.0043	-.0555	-.10
	-.05	-.061	1.12	.983	-.050	.0038	-.0580	-.05
	0.00	-.039	1.09	1.024	-.052	.0013	-.0146	0.00
	0.00	-.043	1.09	1.021	-.059	.0013	-.0145	0.00
	.05	-.063	1.10	.983	-.056	-.0008	.0171	.05
	.10	-.061	1.12	.995	-.070	-.0020	.0324	.10
	.20	-.048	1.14	1.011	-.147	-.0021	-.0056	.20
	.30	-.028	1.20	.966	-.181	-.0012	-.0359	.30
	.40	.006	1.16	.757	-.182	-.0007	-.0455	.40
70	-.40	-.002	1.22	.747	.090	.0015	.0684	-.40
	-.30	-.022	1.15	.779	.073	.0016	.0390	-.30
	-.20	-.048	1.15	.883	.040	.0020	.0145	-.20
	-.10	-.058	1.13	.885	-.019	.0036	-.0588	-.10
	-.05	-.066	1.12	.913	-.012	.0034	-.0596	-.05
	0.00	-.059	1.15	1.013	-.067	.0010	-.0114	0.00
	0.00	-.059	1.14	1.002	-.015	.0014	-.0194	0.00
	.05	-.069	1.12	.940	-.023	.0002	-.0045	.05
	.10	-.062	1.11	.888	-.006	-.0012	.0191	.10
	.20	-.048	1.15	.904	-.143	-.0020	.0045	.20
	.30	-.021	1.15	.781	-.193	-.0012	-.0230	.30
	.40	.001	1.21	.752	-.171	-.0004	-.0588	.40
75	-.40	-.029	1.24	.634	.122	.0004	.0830	-.40
	-.30	-.015	1.16	.655	.068	.0011	.0404	-.30
	-.20	-.031	1.13	.729	.017	.0019	-.0119	-.20
	-.10	-.043	1.11	.781	-.027	.0029	-.0681	-.10
	-.05	-.045	1.10	.786	-.035	.0029	-.0753	-.05
	0.00	-.039	1.12	.887	.001	.0019	-.0431	0.00
	0.00	-.045	1.13	.887	.005	.0014	-.0300	0.00
	.05	-.048	1.10	.819	.030	.0003	-.0037	.05
	.10	-.039	1.08	.772	.013	-.0009	.0212	.10
	.20	-.027	1.10	.723	-.086	-.0008	-.0113	.20
	.30	-.012	1.15	.672	-.111	-.0002	-.0502	.30

X-29A ROTARY BALANCE DATA

9B

BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
80	-.40	-.026	1.25	.613	.110	-.0000	.0815	-.40
	-.30	-.023	1.17	.605	.049	.0005	.0389	-.30
	-.20	-.026	1.13	.613	.006	.0017	-.0116	-.20
	-.10	-.024	1.08	.616	-.055	.0020	-.0448	-.10
	-.05	-.026	1.07	.655	-.062	.0014	-.0337	-.05
	0.00	-.003	1.06	.684	-.055	.0008	-.0077	0.00
	0.00	-.022	1.07	.685	-.052	.0010	-.0180	0.00
	.05	-.021	1.06	.672	-.064	.0003	.0010	.05
	.10	-.017	1.05	.615	-.040	-.0011	.0259	.10
	.20	-.015	1.09	.598	-.080	-.0004	-.0114	.20
	.30	-.016	1.15	.597	-.090	.0004	-.0475	.30
	.40	-.019	1.22	.629	-.118	.0012	-.0857	.40
85	-.40	-.024	1.26	.587	.079	-.0003	.0748	-.40
	-.30	-.017	1.17	.551	.048	.0005	.0360	-.30
	-.20	-.006	1.10	.522	.003	.0011	.0037	-.20
	-.10	-.004	1.05	.542	-.060	.0010	-.0140	-.10
	-.05	-.003	1.04	.562	-.076	.0007	-.0080	-.05
	0.00	.019	1.02	.588	-.096	.0003	-.0000	0.00
	0.00	.015	1.02	.585	-.079	.0002	.0033	0.00
	.05	-.004	1.04	.558	-.102	-.0008	.0196	.05
	.10	-.006	1.04	.524	-.099	-.0015	.0278	.10
	.20	-.008	1.09	.525	-.113	-.0010	-.0038	.20
	.30	-.019	1.16	.557	-.133	-.0002	-.0371	.30
	.40	-.024	1.26	.596	-.139	.0008	-.0748	.40
90	-.40	.004	1.29	.619	.094	.0004	.0691	-.40
	-.30	-.027	1.19	.539	.062	.0010	.0321	-.30
	-.20	-.027	1.13	.496	.025	.0019	-.0078	-.20
	-.10	-.030	1.06	.490	-.045	.0018	-.0286	-.10
	-.05	-.029	1.05	.511	-.065	.0012	-.0147	-.05
	0.00	-.019	1.01	.511	-.078	.0004	.0043	0.00
	0.00	-.022	1.04	.523	-.082	.0002	.0041	0.00
	.05	-.027	1.05	.485	-.130	-.0015	.0387	.05
	.10	-.029	1.07	.478	-.141	-.0023	.0506	.10
	.20	-.025	1.13	.491	-.176	-.0018	.0166	.20
	.30	-.027	1.19	.547	-.160	-.0005	-.0224	.30
	.40	-.004	1.30	.630	-.145	.0011	-.0661	.40

***** X-29A ROTARY BALANCE DATA *****

9BW BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.40	.037	-.02	-.088	.021	.1364	.0155	-.40
	-.30	.036	-.00	-.104	.014	.0982	.0131	-.30
	-.20	.038	.03	-.112	.013	.0600	.0094	-.20
	-.10	.038	.05	-.110	.014	.0244	.0057	-.10
	-.05	.038	.06	-.109	.017	.0079	.0043	-.05
	0.00	.038	.05	-.118	.009	-.0079	.0022	0.00
	0.00	.037	.05	-.117	.009	-.0078	.0024	0.00
	.05	.029	.06	-.111	.018	-.0240	.0010	.05
	.10	.029	.05	-.112	.020	-.0407	-.0008	.10
	.20	.026	.04	-.113	.030	-.0758	-.0051	.20
	.30	.023	.01	-.108	.043	-.1133	-.0095	.30
	.40	.025	.01	-.092	.060	-.1503	-.0129	.40
5	-.40	.027	.33	-.086	-.007	.1279	.0173	-.40
	-.30	.015	.36	-.091	-.002	.0965	.0161	-.30
	-.20	.007	.37	-.081	-.001	.0596	.0132	-.20
	-.10	.005	.39	-.078	.006	.0242	.0083	-.10
	-.05	.006	.40	-.077	.007	.0084	.0055	-.05
	0.00	.009	.39	-.094	.005	-.0079	.0022	0.00
	0.00	.008	.39	-.095	.016	-.0077	.0020	0.00
	.05	.007	.40	-.074	.011	-.0255	-.0008	.05
	.10	.006	.39	-.074	.013	-.0414	-.0038	.10
	.20	.005	.39	-.081	.023	-.0758	-.0088	.20
	.30	.012	.38	-.090	.036	-.1120	-.0107	.30
	.40	.022	.35	-.085	.059	-.1414	-.0115	.40
10	-.40	.019	.61	-.069	-.029	.0988	.0235	-.40
	-.30	.011	.62	-.061	-.020	.0792	.0179	-.30
	-.20	-.006	.67	-.046	-.016	.0576	.0141	-.20
	-.10	-.024	.71	-.031	-.008	.0260	.0090	-.10
	-.05	-.030	.72	-.019	-.002	.0089	.0057	-.05
	0.00	-.030	.70	-.035	.003	-.0088	.0023	0.00
	0.00	-.026	.68	-.032	-.011	-.0092	.0022	0.00
	.05	-.029	.71	-.019	.008	-.0265	-.0005	.05
	.10	-.023	.71	-.027	.014	-.0432	-.0034	.10
	.20	-.006	.67	-.040	.027	-.0739	-.0073	.20
	.30	.010	.63	-.049	.042	-.0954	-.0095	.30
	.40	.015	.63	-.059	.070	-.1161	-.0144	.40
15	-.40	.008	.81	-.044	-.043	.0588	.0309	-.40
	-.30	.002	.84	-.033	-.040	.0488	.0206	-.30
	-.20	-.014	.89	-.013	-.035	.0350	.0124	-.20
	-.10	-.027	.95	-.008	-.018	.0164	.0080	-.10
	-.05	-.029	.98	-.009	-.010	.0043	.0059	-.05
	0.00	-.016	.94	-.029	-.010	-.0081	.0035	0.00
	0.00	-.018	.95	-.036	.011	-.0070	.0037	0.00
	.05	-.029	.98	-.005	.015	-.0204	.0015	.05
	.10	-.027	.95	-.001	.024	-.0332	-.0005	.10
	.20	-.013	.88	-.003	.041	-.0510	-.0047	.20
	.30	.001	.83	-.020	.049	-.0654	-.0121	.30
	.40	.007	.80	-.030	.058	-.0724	-.0208	.40

X-29A ROTARY BALANCE DATA

9BW BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
20	-.40	-.012	1.08	.013	-.043	.0269	.0420	-.40
	-.30	-.013	1.06	-.007	-.021	.0137	.0280	-.30
	-.20	-.017	1.08	.009	-.026	.0049	.0163	-.20
	-.10	-.018	1.10	.015	-.020	-.0024	.0064	-.10
	-.05	-.019	1.11	.017	-.014	-.0055	.0051	-.05
	0.00	-.006	1.07	.001	-.013	-.0046	.0050	0.00
	0.00	-.008	1.09	-.005	.004	-.0053	.0050	0.00
	.05	-.018	1.11	.021	.005	-.0086	.0042	.05
	.10	-.017	1.09	.020	.014	-.0112	.0029	.10
	.20	-.014	1.06	.021	.020	-.0182	-.0059	.20
	.30	-.011	1.04	.014	.027	-.0274	-.0154	.30
	.40	-.010	1.07	.030	.060	-.0413	-.0249	.40
25	-.40	-.022	1.33	.099	-.044	.0057	.0327	-.40
	-.30	-.015	1.30	.028	.009	-.0008	.0251	-.30
	-.20	-.018	1.28	.029	-.006	-.0057	.0159	-.20
	-.10	-.023	1.28	.037	-.009	-.0088	.0073	-.10
	-.05	-.025	1.27	.039	-.006	-.0064	.0061	-.05
	0.00	-.009	1.24	.011	-.001	-.0042	.0053	0.00
	0.00	-.011	1.25	.014	.001	-.0045	.0058	0.00
	.05	-.023	1.27	.040	-.014	-.0010	.0060	.05
	.10	-.022	1.27	.044	-.005	.0005	.0049	.10
	.20	-.017	1.27	.044	-.008	-.0034	.0005	.20
	.30	-.016	1.29	.055	.005	-.0120	-.0057	.30
	.40	-.026	1.35	.165	.118	-.0206	-.0064	.40
30	-.40	-.037	1.69	.300	-.136	-.0019	.0093	-.40
	-.30	-.024	1.53	.134	.007	-.0147	.0089	-.30
	-.20	-.029	1.48	.102	-.006	-.0086	.0098	-.20
	-.10	-.032	1.48	.069	-.014	-.0111	.0059	-.10
	-.05	-.032	1.48	.058	-.006	-.0093	.0055	-.05
	0.00	-.011	1.45	.031	-.016	-.0007	.0064	0.00
	0.00	-.010	1.46	.030	-.019	.0009	.0051	0.00
	.05	-.032	1.48	.055	-.015	.0053	.0090	.05
	.10	-.032	1.47	.078	-.019	.0037	.0095	.10
	.20	-.027	1.49	.121	-.003	.0026	.0116	.20
	.30	-.024	1.55	.185	.036	-.0013	.0160	.30
	.40	-.034	1.69	.309	.081	-.0092	.0282	.40
35	-.40	-.051	1.99	.391	-.035	-.0205	-.0163	-.40
	-.30	-.042	1.81	.297	-.044	-.0122	-.0133	-.30
	-.20	-.042	1.70	.226	-.094	-.0022	-.0131	-.20
	-.10	-.042	1.64	.128	-.054	-.0121	-.0085	-.10
	-.05	-.041	1.66	.093	-.039	-.0145	-.0031	-.05
	0.00	-.026	1.63	.063	-.023	.0015	.0055	0.00
	0.00	-.026	1.65	.068	-.019	-.0009	.0066	0.00
	.05	-.043	1.65	.095	-.000	.0059	.0214	.05
	.10	-.044	1.65	.138	.012	.0056	.0240	.10
	.20	-.040	1.68	.240	.041	-.0050	.0350	.20
	.30	-.032	1.79	.298	-.012	.0019	.0430	.30
	.40	-.043	2.00	.365	-.024	.0053	.0458	.40

X-29A ROTARY BALANCE DATA

9BW BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
40	-.40	-.061	2.22	.445	.089	-.0158	-.0150	-.40
	-.30	-.056	2.05	.410	.024	-.0170	-.0347	-.30
	-.20	-.058	1.92	.358	-.121	-.0087	-.0465	-.20
	-.10	-.055	1.81	.194	-.118	-.0099	-.0363	-.10
	-.05	-.055	1.81	.132	-.087	-.0169	-.0216	-.05
	0.00	-.039	1.82	.102	-.060	-.0027	.0003	0.00
	0.00	-.040	1.82	.101	-.046	.0004	.0055	0.00
	.05	-.057	1.79	.129	.029	.0110	.0376	.05
	.10	-.058	1.81	.191	.039	.0007	.0510	.10
	.20	-.055	1.91	.329	.022	.0030	.0642	.20
	.30	-.050	2.06	.388	-.078	.0093	.0631	.30
	.40	-.055	2.24	.430	-.131	.0104	.0471	.40
45	-.40	-.082	2.40	.514	.222	-.0245	.0018	-.40
	-.30	-.079	2.24	.466	.061	-.0219	-.0411	-.30
	-.20	-.084	2.15	.416	-.065	-.0081	-.0706	-.20
	-.10	-.085	2.04	.289	-.163	-.0018	-.0715	-.10
	-.05	-.084	1.97	.185	-.118	-.0144	-.0460	-.05
	0.00	-.059	1.94	.123	-.042	-.0032	.0159	0.00
	0.00	-.066	1.97	.103	-.004	.0104	.0243	0.00
	.05	-.084	1.99	.171	.036	.0067	.0654	.05
	.10	-.086	2.01	.253	.050	.0033	.0806	.10
	.20	-.081	2.12	.379	-.037	.0026	.0841	.20
	.30	-.077	2.26	.475	-.134	.0189	.0613	.30
	.40	-.079	2.42	.509	-.247	.0195	.0268	.40
50	-.40	-.108	2.54	.580	.302	-.0384	.0603	-.40
	-.30	-.100	2.39	.526	.167	-.0276	-.0065	-.30
	-.20	-.105	2.27	.447	.045	-.0083	-.0503	-.20
	-.10	-.104	2.19	.337	-.170	.0030	-.1020	-.10
	-.05	-.102	2.11	.227	-.153	.0043	-.0698	-.05
	0.00	-.078	2.06	.164	.012	-.0093	.0465	0.00
	0.00	-.098	2.07	.157	.044	-.0106	.0530	0.00
	.05	-.105	2.11	.236	.068	-.0135	.0978	.05
	.10	-.106	2.16	.295	.049	-.0148	.1034	.10
	.20	-.103	2.27	.441	-.149	.0062	.0629	.20
	.30	-.098	2.42	.558	-.235	.0238	.0211	.30
	.40	-.106	2.57	.624	-.282	.0344	-.0171	.40
55	-.40	-.141	2.68	.584	.318	-.0208	.1165	-.40
	-.30	-.129	2.50	.574	.128	-.0153	.0343	-.30
	-.20	-.129	2.38	.508	.047	-.0111	-.0165	-.20
	-.10	-.127	2.28	.326	-.119	.0108	-.0632	-.10
	-.05	-.122	2.24	.259	-.166	.0053	-.0762	-.05
	0.00	-.102	2.19	.197	-.007	-.0125	.0386	0.00
	0.00	-.105	2.18	.189	.011	-.0118	.0345	0.00
	.05	-.123	2.23	.239	.052	-.0114	.0918	.05
	.10	-.127	2.28	.310	-.014	-.0144	.0661	.10
	.20	-.123	2.36	.524	-.123	.0096	.0304	.20
	.30	-.128	2.47	.587	-.163	.0100	-.0018	.30
	.40	-.132	2.67	.573	-.280	.0153	-.0659	.40

X-29A ROTARY BALANCE DATA

9BW BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
60	-.40	-.177	2.89	.289	.310	-.0210	.1721	-.40
	-.30	-.163	2.75	.409	.224	-.0079	.1271	-.30
	-.20	-.139	2.53	.240	.021	-.0037	.0249	-.20
	-.10	-.145	2.43	.267	-.042	-.0003	-.0279	-.10
	-.05	-.145	2.40	.236	-.134	.0057	-.0465	-.05
	0.00	-.098	2.39	.234	-.043	-.0079	.0309	0.00
	0.00	-.103	2.36	.233	-.045	-.0081	.0250	0.00
	.05	-.144	2.39	.221	-.037	-.0102	.0508	.05
	.10	-.143	2.41	.254	-.073	-.0077	.0364	.10
	.20	-.137	2.52	.291	-.148	.0035	.0008	.20
	.30	-.136	2.61	.274	-.204	.0073	-.0653	.30
	.40	-.154	2.81	.235	-.310	.0202	-.1148	.40
65	-.40	-.151	2.96	.091	.219	-.0276	.1377	-.40
	-.30	-.153	2.76	.122	.112	-.0125	.1042	-.30
	-.20	-.162	2.63	.145	-.036	-.0030	.0259	-.20
	-.10	-.171	2.52	.161	-.074	.0003	-.0220	-.10
	-.05	-.177	2.50	.182	-.105	.0019	-.0270	-.05
	0.00	-.159	2.50	.227	-.104	-.0005	.0138	0.00
	0.00	-.159	2.47	.229	-.114	-.0004	-.0019	0.00
	.05	-.176	2.49	.181	-.072	-.0047	.0314	.05
	.10	-.170	2.47	.179	-.118	-.0034	.0295	.10
	.20	-.155	2.60	.144	-.105	-.0011	.0042	.20
	.30	-.143	2.69	.158	-.126	.0133	-.0221	.30
	.40	-.135	2.88	.104	-.212	.0309	-.0611	.40
70	-.40	-.149	3.04	-.112	.124	-.0317	.0960	-.40
	-.30	-.153	2.84	-.056	-.004	-.0168	.0470	-.30
	-.20	-.164	2.70	-.025	-.066	-.0061	.0001	-.20
	-.10	-.165	2.59	-.017	-.112	-.0015	-.0334	-.10
	-.05	-.173	2.55	.077	-.071	.0003	-.0145	-.05
	0.00	-.157	2.56	.174	-.118	.0010	-.0061	0.00
	0.00	-.158	2.54	.183	-.108	.0010	-.0025	0.00
	.05	-.174	2.53	.083	-.070	-.0016	.0260	.05
	.10	-.165	2.56	-.021	-.024	-.0007	.0569	.10
	.20	-.156	2.65	-.023	-.060	.0047	.0258	.20
	.30	-.143	2.76	-.052	-.085	.0195	-.0089	.30
	.40	-.138	2.98	-.109	-.195	.0429	-.0536	.40
75	-.40	-.168	3.17	-.257	.102	-.0361	.0756	-.40
	-.30	-.163	2.89	-.230	-.027	-.0198	.0362	-.30
	-.20	-.168	2.74	-.180	-.086	-.0103	-.0117	-.20
	-.10	-.182	2.63	-.134	-.125	-.0041	-.0467	-.10
	-.05	-.187	2.60	-.123	-.128	-.0025	-.0455	-.05
	0.00	-.183	2.62	-.008	-.084	-.0008	.0077	0.00
	0.00	-.162	2.61	.014	-.097	.0003	.0127	0.00
	.05	-.175	2.59	-.113	-.026	.0018	.0530	.05
	.10	-.172	2.60	-.139	-.004	.0034	.0668	.10
	.20	-.157	2.69	-.184	-.046	.0100	.0251	.20
	.30	-.154	2.85	-.199	-.072	.0225	-.0067	.30
	.40	-.160	3.11	-.214	-.183	.0486	-.0427	.40

X-29A ROTARY BALANCE DATA

9BW BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
80	-.40	-.192	3.22	-.341	.101	-.0455	.0801	-.40
	-.30	-.181	2.97	-.320	-.044	-.0245	.0277	-.30
	-.20	-.175	2.78	-.290	-.080	-.0151	-.0123	-.20
	-.10	-.171	2.66	-.295	-.101	-.0085	-.0433	-.10
	-.05	-.171	2.64	-.262	-.087	-.0056	-.0240	-.05
	0.00	-.184	2.67	-.233	-.054	-.0002	.0095	0.00
	0.00	-.159	2.65	-.226	-.072	.0009	.0114	0.00
	.05	-.167	2.62	-.240	-.054	.0044	.0312	.05
	.10	-.166	2.63	-.294	-.017	.0094	.0635	.10
	.20	-.167	2.74	-.274	-.038	.0165	.0279	.20
	.30	-.172	2.92	-.274	-.072	.0275	-.0127	.30
	.40	-.184	3.19	-.284	-.217	.0571	-.0547	.40
85	-.40	-.195	3.24	-.352	.092	-.0598	.0820	-.40
	-.30	-.197	2.98	-.377	-.035	-.0327	.0360	-.30
	-.20	-.186	2.79	-.377	-.059	-.0209	-.0049	-.20
	-.10	-.182	2.69	-.364	-.077	-.0123	-.0305	-.10
	-.05	-.180	2.66	-.344	-.068	-.0072	-.0164	-.05
	0.00	-.198	2.68	-.325	-.067	.0009	.0104	0.00
	0.00	-.173	2.67	-.318	-.072	.0010	.0085	0.00
	.05	-.176	2.65	-.346	-.044	.0079	.0362	.05
	.10	-.178	2.68	-.369	-.026	.0129	.0522	.10
	.20	-.180	2.78	-.356	-.047	.0231	.0209	.20
	.30	-.189	2.95	-.332	-.088	.0352	-.0223	.30
	.40	-.195	3.25	-.316	-.200	.0636	-.0603	.40
90	-.40	-.150	3.24	-.382	.109	-.0664	.0839	-.40
	-.30	-.202	2.97	-.441	-.016	-.0408	.0476	-.30
	-.20	-.195	2.77	-.455	-.048	-.0268	.0058	-.20
	-.10	-.190	2.66	-.441	-.088	-.0165	-.0315	-.10
	-.05	-.188	2.63	-.418	-.080	-.0098	-.0237	-.05
	0.00	-.187	2.59	-.418	-.071	.0061	.0151	0.00
	0.00	-.184	2.62	-.417	-.093	.0034	.0075	0.00
	.05	-.182	2.60	-.447	-.036	.0123	.0477	.05
	.10	-.186	2.64	-.450	-.033	.0180	.0534	.10
	.20	-.186	2.76	-.438	-.070	.0285	.0103	.20
	.30	-.195	2.94	-.404	-.120	.0399	-.0342	.30
	.40	-.136	3.24	-.361	-.175	.0701	-.0661	.40

***** X-29A ROTARY BALANCE DATA *****

9BWV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.40	.024	-.01	-.079	.042	.1496	-.0042	-.40
	-.30	.022	.01	-.100	.026	.1061	.0015	-.30
	-.20	.023	.05	-.109	.015	.0642	.0023	-.20
	-.10	.023	.07	-.108	.012	.0262	.0009	-.10
	-.05	.019	.08	-.108	.013	.0085	.0003	-.05
	0.00	.019	.05	-.115	.002	-.0076	-.0016	0.00
	0.00	.019	.05	-.116	.002	-.0077	-.0019	0.00
	.05	.018	.08	-.111	.015	-.0250	-.0006	.05
	.10	.018	.07	-.111	.016	-.0431	-.0012	.10
	.20	.013	.05	-.107	.017	-.0801	-.0015	.20
	.30	.010	.03	-.100	.015	-.1214	.0007	.30
	.40	.010	.04	-.084	.018	-.1632	.0057	.40
5	-.40	.011	.33	-.086	-.017	.1376	.0129	-.40
	-.30	-.002	.37	-.089	-.014	.1025	.0144	-.30
	-.20	-.010	.38	-.080	-.013	.0626	.0119	-.20
	-.10	-.013	.39	-.079	-.002	.0252	.0068	-.10
	-.05	-.013	.40	-.077	.004	.0087	.0040	-.05
	0.00	-.011	.39	-.089	.008	-.0079	.0005	0.00
	0.00	-.010	.37	-.084	.000	-.0084	-.0011	0.00
	.05	-.011	.39	-.074	.009	-.0260	-.0033	.05
	.10	-.013	.39	-.074	.012	-.0428	-.0061	.10
	.20	-.014	.39	-.077	.021	-.0789	-.0109	.20
	.30	-.008	.39	-.087	.032	-.1181	-.0112	.30
	.40	.001	.37	-.085	.044	-.1513	-.0078	.40
10	-.40	-.003	.61	-.079	-.067	.1025	.0343	-.40
	-.30	-.012	.63	-.063	-.041	.0823	.0239	-.30
	-.20	-.032	.68	-.042	-.040	.0590	.0185	-.20
	-.10	-.050	.71	-.023	-.024	.0262	.0106	-.10
	-.05	-.057	.72	-.010	-.017	.0086	.0053	-.05
	0.00	-.055	.70	-.020	-.008	-.0090	-.0011	0.00
	0.00	-.055	.68	-.019	-.010	-.0097	-.0011	0.00
	.05	-.057	.72	-.010	.001	-.0275	-.0047	.05
	.10	-.051	.71	-.021	.009	-.0442	-.0087	.10
	.20	-.033	.67	-.037	.032	-.0762	-.0150	.20
	.30	-.015	.63	-.052	.049	-.0991	-.0182	.30
	.40	-.008	.60	-.072	.074	-.1188	-.0254	.40
15	-.40	-.015	.79	-.033	-.110	.0578	.0558	-.40
	-.30	-.024	.82	-.026	-.090	.0494	.0370	-.30
	-.20	-.041	.87	-.005	-.070	.0357	.0201	-.20
	-.10	-.055	.94	.002	-.039	.0175	.0094	-.10
	-.05	-.058	.97	.001	-.025	.0046	.0051	-.05
	0.00	-.045	.93	-.016	-.029	-.0064	.0003	0.00
	0.00	-.046	.92	-.014	-.026	-.0069	.0001	0.00
	.05	-.058	.95	.005	-.002	-.0204	-.0021	.05
	.10	-.054	.92	.009	.016	-.0340	-.0062	.10
	.20	-.039	.86	.005	.041	-.0519	-.0153	.20
	.30	-.024	.81	-.014	.073	-.0657	-.0298	.30
	.40	-.016	.78	-.032	.095	-.0704	-.0458	.40

X-29A ROTARY BALANCE DATA

9BWV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
20	-.40	-.028	1.00	.061	-.130	.0145	.0806	-.40
	-.30	-.040	1.03	.008	-.093	.0080	.0603	-.30
	-.20	-.045	1.08	.020	-.080	.0029	.0347	-.20
	-.10	-.044	1.10	.024	-.049	-.0031	.0131	-.10
	-.05	-.046	1.11	.026	-.026	-.0050	.0079	-.05
	0.00	-.037	1.09	.011	-.017	-.0041	.0033	0.00
	0.00	-.044	1.11	.003	-.011	-.0077	.0043	0.00
	0.00	-.058	.04	-.020	-.067	-.0006	.0031	0.00
	.05	-.046	1.10	.026	-.007	-.0085	-.0002	.05
	.10	-.045	1.09	.026	.012	-.0095	-.0056	.10
	.20	-.043	1.06	.026	.046	-.0169	-.0268	.20
	.30	-.038	1.04	.025	.078	-.0221	-.0492	.30
	.40	-.029	1.00	.081	.107	-.0301	-.0599	.40
25	-.40	-.042	1.35	.153	-.165	-.0051	.0761	-.40
	-.30	-.036	1.30	.048	-.068	-.0054	.0560	-.30
	-.20	-.040	1.29	.031	-.065	-.0074	.0393	-.20
	-.10	-.043	1.31	.035	-.044	-.0092	.0170	-.10
	-.05	-.044	1.30	.032	-.028	-.0064	.0106	-.05
	0.00	-.022	1.26	.010	-.038	-.0047	.0048	0.00
	0.00	-.025	1.27	.005	-.023	-.0026	.0040	0.00
	.05	-.043	1.30	.035	-.013	-.0001	-.0000	.05
	.10	-.044	1.29	.040	-.007	.0018	-.0053	.10
	.20	-.040	1.29	.043	.015	-.0011	-.0224	.20
	.30	-.038	1.30	.065	.034	-.0069	-.0335	.30
	.40	-.046	1.34	.211	.156	-.0109	-.0466	.40
30	-.40	-.059	1.69	.346	-.273	-.0141	.0617	-.40
	-.30	-.045	1.52	.155	-.086	-.0158	.0407	-.30
	-.20	-.049	1.48	.114	-.072	-.0083	.0309	-.20
	-.10	-.056	1.48	.069	-.040	-.0104	.0147	-.10
	-.05	-.055	1.48	.050	-.033	-.0094	.0080	-.05
	0.00	-.048	1.47	.026	-.037	-.0002	.0051	0.00
	0.00	-.038	1.46	.024	-.026	.0003	.0044	0.00
	.05	-.054	1.48	.048	-.013	.0053	.0048	.05
	.10	-.053	1.47	.075	-.018	.0041	.0005	.10
	.20	-.049	1.48	.125	.016	.0031	-.0075	.20
	.30	-.046	1.52	.206	.055	.0038	-.0137	.30
	.40	-.059	1.66	.342	.119	-.0007	-.0151	.40
35	-.40	-.072	1.99	.444	-.152	-.0258	.0314	-.40
	-.30	-.063	1.81	.325	-.123	-.0159	.0156	-.30
	-.20	-.063	1.71	.240	-.123	-.0034	-.0035	-.20
	-.10	-.065	1.66	.127	-.071	-.0140	-.0040	-.10
	-.05	-.064	1.67	.088	-.058	-.0154	-.0001	-.05
	0.00	-.041	1.64	.058	-.045	-.0004	.0046	0.00
	0.00	-.046	1.65	.058	-.030	-.0002	.0069	0.00
	.05	-.064	1.68	.089	-.015	.0075	.0203	.05
	.10	-.065	1.64	.138	.008	.0073	.0200	.10
	.20	-.061	1.69	.248	.051	-.0010	.0237	.20
	.30	-.056	1.77	.317	.025	.0060	.0094	.30
	.40	-.066	1.95	.417	.033	.0122	-.0081	.40

X-29A ROTARY BALANCE DATA

9BWV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
40	-.40	-.088	2.20	.480	-.065	-.0237	.0468	-.40
	-.30	-.083	2.06	.421	-.055	-.0206	-.0035	-.30
	-.20	-.084	1.93	.362	-.153	-.0108	-.0311	-.20
	-.10	-.083	1.84	.194	-.146	-.0100	-.0307	-.10
	-.05	-.083	1.82	.130	-.114	-.0195	-.0147	-.05
	0.00	-.062	1.83	.096	-.052	-.0038	.0046	0.00
	0.00	-.063	1.85	.097	-.055	-.0028	.0032	0.00
	.05	-.086	1.83	.123	.020	.0144	.0325	.05
	.10	-.086	1.85	.188	.036	.0026	.0477	.10
	.20	-.084	1.92	.326	.039	.0065	.0484	.20
	.30	-.080	2.05	.405	-.025	.0140	.0233	.30
	.40	-.085	2.21	.479	-.038	.0158	-.0123	.40
45	-.40	-.111	2.39	.542	.071	-.0314	.0480	-.40
	-.30	-.103	2.26	.471	-.010	-.0232	-.0214	-.30
	-.20	-.103	2.17	.411	-.093	-.0107	-.0606	-.20
	-.10	-.101	2.06	.285	-.181	-.0021	-.0679	-.10
	-.05	-.099	1.99	.173	-.146	-.0152	-.0412	-.05
	0.00	-.090	1.97	.118	-.057	.0070	.0161	0.00
	0.00	-.071	1.96	.120	-.077	-.0011	.0117	0.00
	.05	-.095	2.00	.159	.035	.0079	.0620	.05
	.10	-.097	2.03	.245	.049	.0034	.0793	.10
	.20	-.098	2.14	.372	-.025	.0036	.0796	.20
	.30	-.096	2.28	.486	-.075	.0207	.0431	.30
	.40	-.105	2.41	.550	-.168	.0257	-.0210	.40
50	-.40	-.132	2.54	.591	.210	-.0457	.0944	-.40
	-.30	-.120	2.43	.527	.119	-.0285	-.0025	-.30
	-.20	-.120	2.29	.450	.026	-.0101	-.0533	-.20
	-.10	-.118	2.20	.334	-.164	.0057	-.1062	-.10
	-.05	-.115	2.11	.222	-.160	.0045	-.0708	-.05
	0.00	-.122	2.09	.150	-.022	-.0015	.0474	0.00
	0.00	-.101	2.07	.163	-.036	.0052	.0399	0.00
	.05	-.113	2.11	.220	.048	-.0134	.1012	.05
	.10	-.117	2.18	.282	.000	-.0163	.1188	.10
	.20	-.115	2.29	.436	-.168	.0063	.0693	.20
	.30	-.113	2.40	.557	-.255	.0242	.0209	.30
	.40	-.127	2.56	.635	-.252	.0448	-.0545	.40
55	-.40	-.174	2.68	.590	.249	-.0240	.1410	-.40
	-.30	-.154	2.54	.591	.109	-.0161	.0349	-.30
	-.20	-.143	2.41	.496	.016	-.0111	-.0156	-.20
	-.10	-.136	2.29	.324	-.108	.0143	-.0739	-.10
	-.05	-.130	2.25	.253	-.162	.0075	-.0848	-.05
	0.00	-.110	2.19	.197	-.037	-.0121	.0371	0.00
	0.00	-.110	2.20	.191	-.033	-.0112	.0439	0.00
	.05	-.127	2.23	.223	.010	-.0132	.1052	.05
	.10	-.133	2.28	.295	-.071	-.0167	.0824	.10
	.20	-.135	2.37	.516	-.155	.0102	.0346	.20
	.30	-.145	2.47	.590	-.173	.0138	.0002	.30
	.40	-.162	2.62	.601	-.244	.0210	-.0866	.40

X-29A ROTARY BALANCE DATA

9BWV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
60	-.40	-.170	2.79	.387	.315	-.0267	.2227	-.40
	-.30	-.175	2.64	.459	.164	-.0074	.1134	-.30
	-.20	-.169	2.43	.261	.012	-.0024	.0281	-.20
	-.10	-.186	2.36	.272	-.048	.0011	-.0302	-.10
	-.05	-.188	2.33	.229	-.100	.0082	-.0560	-.05
	0.00	-.144	2.30	.215	-.036	-.0072	.0279	0.00
	0.00	-.122	2.33	.236	-.027	-.0106	.0381	0.00
	.05	-.183	2.33	.212	-.030	-.0133	.0623	.05
	.10	-.180	2.36	.255	-.079	-.0099	.0437	.10
	.20	-.168	2.43	.307	-.139	.0025	.0024	.20
	.30	-.164	2.55	.391	-.220	.0085	-.0706	.30
	.40	-.149	2.69	.300	-.300	.0251	-.1504	.40
65	-.40	-.164	2.83	.100	.164	-.0317	.1610	-.40
	-.30	-.159	2.62	.116	.104	-.0128	.1041	-.30
	-.20	-.159	2.51	.124	-.029	-.0031	.0266	-.20
	-.10	-.168	2.41	.168	-.032	.0001	-.0175	-.10
	-.05	-.171	2.39	.173	-.073	.0023	-.0264	-.05
	0.00	-.144	2.39	.214	-.071	-.0031	.0151	0.00
	0.00	-.150	2.39	.220	-.046	-.0036	.0233	0.00
	.05	-.174	2.39	.171	-.082	-.0066	.0385	.05
	.10	-.170	2.40	.172	-.087	-.0047	.0328	.10
	.20	-.157	2.50	.137	-.076	-.0017	.0071	.20
	.30	-.151	2.60	.156	-.118	.0116	-.0266	.30
	.40	-.150	2.76	.106	-.177	.0329	-.0838	.40
70	-.40	-.159	2.88	-.086	.073	-.0421	.1129	-.40
	-.30	-.159	2.66	-.065	-.011	-.0178	.0410	-.30
	-.20	-.169	2.54	-.030	-.046	-.0057	-.0022	-.20
	-.10	-.170	2.44	-.034	-.101	-.0018	-.0352	-.10
	-.05	-.177	2.41	.052	-.060	.0003	-.0150	-.05
	0.00	-.145	2.43	.153	-.090	-.0014	.0065	0.00
	0.00	-.151	2.41	.160	-.071	-.0010	.0090	0.00
	.05	-.175	2.41	.057	-.060	-.0035	.0321	.05
	.10	-.168	2.43	-.026	-.014	-.0032	.0585	.10
	.20	-.162	2.52	-.017	-.062	.0026	.0280	.20
	.30	-.151	2.62	-.051	-.085	.0182	-.0112	.30
	.40	-.150	2.84	-.089	-.171	.0457	-.0763	.40
75	-.40	-.175	2.95	-.230	.057	-.0441	.0903	-.40
	-.30	-.162	2.69	-.224	-.021	-.0202	.0337	-.30
	-.20	-.161	2.54	-.190	-.060	-.0093	-.0111	-.20
	-.10	-.168	2.46	-.146	-.104	-.0034	-.0453	-.10
	-.05	-.170	2.42	-.137	-.099	-.0027	-.0435	-.05
	0.00	-.147	2.44	-.026	-.061	-.0012	.0106	0.00
	0.00	-.154	2.44	-.023	-.046	-.0009	.0133	0.00
	.05	-.161	2.42	-.132	-.002	-.0015	.0613	.05
	.10	-.161	2.44	-.151	.003	-.0000	.0712	.10
	.20	-.152	2.52	-.187	-.038	.0085	.0303	.20
	.30	-.153	2.66	-.192	-.073	.0211	-.0073	.30
	.40	-.168	2.92	-.202	-.154	.0490	-.0600	.40

X-29A ROTARY BALANCE DATA

9BWV

BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
80	-.40	-.188	2.98	-.323	.091	-.0522	.0892	-.40
	-.30	-.176	2.72	-.298	-.026	-.0250	.0273	-.30
	-.20	-.171	2.56	-.288	-.054	-.0123	-.0148	-.20
	-.10	-.166	2.45	-.282	-.072	-.0067	-.0453	-.10
	-.05	-.162	2.41	-.256	-.055	-.0043	-.0250	-.05
	0.00	-.161	2.45	-.228	-.037	.0000	.0152	0.00
	0.00	-.183	2.44	-.215	-.041	-.0045	.0071	0.00
	.05	-.163	2.42	-.242	-.041	.0015	.0395	.05
	.10	-.162	2.42	-.279	-.008	.0039	.0641	.10
	.20	-.163	2.53	-.267	-.030	.0125	.0338	.20
	.30	-.170	2.69	-.258	-.072	.0278	-.0106	.30
	.40	-.179	2.94	-.263	-.186	.0562	-.0670	.40
85	-.40	-.182	2.97	-.332	.093	-.0612	.0904	-.40
	-.30	-.184	2.69	-.353	-.000	-.0345	.0397	-.30
	-.20	-.165	2.53	-.351	-.022	-.0178	-.0114	-.20
	-.10	-.154	2.42	-.349	-.050	-.0103	-.0348	-.10
	-.05	-.152	2.38	-.327	-.040	-.0062	-.0184	-.05
	0.00	-.167	2.39	-.309	-.041	-.0022	.0052	0.00
	0.00	-.169	2.40	-.312	-.057	-.0018	.0131	0.00
	.05	-.149	2.39	-.326	-.051	.0053	.0426	.05
	.10	-.151	2.42	-.353	-.029	.0096	.0552	.10
	.20	-.157	2.50	-.342	-.050	.0206	.0219	.20
	.30	-.179	2.68	-.320	-.093	.0346	-.0229	.30
	.40	-.185	2.94	-.308	-.186	.0620	-.0707	.40
90	-.40	-.128	2.94	-.371	.114	-.0678	.0961	-.40
	-.30	-.178	2.67	-.412	.012	-.0376	.0480	-.30
	-.20	-.164	2.50	-.436	-.016	-.0235	.0011	-.20
	-.10	-.153	2.38	-.417	-.052	-.0137	-.0350	-.10
	-.05	-.152	2.33	-.403	-.050	-.0073	-.0247	-.05
	0.00	-.172	2.32	-.403	-.049	.0029	.0095	0.00
	0.00	-.146	2.35	-.407	-.058	.0026	.0134	0.00
	.05	-.146	2.33	-.416	-.026	.0090	.0521	.05
	.10	-.152	2.37	-.432	-.026	.0147	.0558	.10
	.20	-.157	2.49	-.416	-.049	.0258	.0120	.20
	.30	-.172	2.67	-.381	-.103	.0397	-.0357	.30
	.40	-.116	2.95	-.347	-.141	.0705	-.0754	.40

***** X-29A ROTARY BALANCE DATA *****

9BWC BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.40	-.009	-.07	.147	-.038	.1416	.0135	-.40
	-.30	-.014	-.05	.072	-.025	.1039	.0113	-.30
	-.20	-.015	.01	.021	-.012	.0632	.0079	-.20
	-.10	-.015	.04	-.006	-.006	.0256	.0046	-.10
	-.05	-.014	.04	-.013	-.004	.0081	.0034	-.05
	0.00	-.014	.02	-.020	-.012	-.0085	.0020	0.00
	0.00	-.011	.03	-.027	-.008	-.0074	.0022	0.00
	.05	-.012	.03	-.013	.000	-.0250	.0012	.05
	.10	-.014	.03	-.007	.003	-.0428	-.0002	.10
	.20	-.016	.01	.018	.013	-.0798	-.0035	.20
	.30	-.019	-.03	.066	.018	-.1194	-.0063	.30
	.40	-.017	-.05	.138	.034	-.1543	-.0078	.40
5	-.40	-.015	.37	.210	-.073	.1319	.0135	-.40
	-.30	-.026	.38	.146	-.046	.0985	.0129	-.30
	-.20	-.036	.41	.114	-.030	.0632	.0113	-.20
	-.10	-.040	.41	.098	-.010	.0257	.0074	-.10
	-.05	-.041	.41	.093	-.006	.0082	.0049	-.05
	0.00	-.038	.41	.083	.003	-.0085	.0023	0.00
	0.00	-.036	.40	.082	-.004	-.0092	.0022	0.00
	.05	-.038	.41	.094	.004	-.0267	-.0005	.05
	.10	-.040	.40	.099	.006	-.0441	-.0030	.10
	.20	-.038	.40	.114	.011	-.0803	-.0064	.20
	.30	-.031	.38	.148	.018	-.1155	-.0070	.30
	.40	-.022	.37	.201	.022	-.1464	-.0072	.40
10	-.40	-.005	.76	.268	-.077	.1065	.0210	-.40
	-.30	-.010	.75	.241	-.056	.0810	.0151	-.30
	-.20	-.026	.78	.237	-.035	.0564	.0113	-.20
	-.10	-.041	.81	.238	-.020	.0258	.0075	-.10
	-.05	-.046	.82	.241	-.011	.0090	.0052	-.05
	0.00	-.039	.80	.231	-.011	-.0094	.0030	0.00
	0.00	-.041	.81	.226	.005	-.0094	.0031	0.00
	.05	-.046	.81	.241	.004	-.0278	.0008	.05
	.10	-.042	.80	.239	.013	-.0450	-.0012	.10
	.20	-.026	.77	.239	.027	-.0748	-.0039	.20
	.30	-.013	.73	.246	.045	-.0981	-.0061	.30
	.40	-.009	.76	.268	.058	-.1258	-.0109	.40
15	-.40	-.011	1.08	.250	-.118	.0697	.0308	-.40
	-.30	-.022	1.09	.277	-.088	.0582	.0193	-.30
	-.20	-.037	1.10	.306	-.062	.0393	.0104	-.20
	-.10	-.050	1.15	.334	-.035	.0158	.0058	-.10
	-.05	-.054	1.16	.345	-.019	.0026	.0044	-.05
	0.00	-.044	1.14	.333	-.018	-.0080	.0032	0.00
	0.00	-.047	1.15	.327	.003	-.0080	.0033	0.00
	.05	-.052	1.16	.341	.006	-.0200	.0029	.05
	.10	-.048	1.14	.334	.015	-.0333	.0020	.10
	.20	-.035	1.09	.314	.040	-.0577	-.0002	.20
	.30	-.024	1.08	.288	.058	-.0828	-.0061	.30
	.40	-.014	1.05	.251	.084	-.0883	-.0143	.40

X-29A ROTARY BALANCE DATA

9BWC BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
20	-.40	-.034	1.39	.341	-.164	.0341	.0492	-.40
	-.30	-.038	1.36	.354	-.110	.0184	.0306	-.30
	-.20	-.045	1.40	.383	-.092	.0087	.0174	-.20
	-.10	-.048	1.41	.389	-.061	-.0003	.0088	-.10
	-.05	-.047	1.40	.368	-.028	-.0045	.0068	-.05
	0.00	-.031	1.38	.351	-.014	-.0085	.0052	0.00
	0.00	-.030	1.39	.357	-.015	-.0071	.0056	0.00
	.05	-.044	1.41	.372	.001	-.0114	.0040	.05
	.10	-.046	1.42	.397	.036	-.0157	.0022	.10
	.20	-.042	1.40	.389	.059	-.0286	-.0049	.20
	.30	-.036	1.37	.372	.078	-.0364	-.0156	.30
	.40	-.034	1.35	.349	.106	-.0515	-.0297	.40
25	-.40	-.054	1.75	.498	-.170	.0089	.0572	-.40
	-.30	-.049	1.68	.435	-.106	-.0061	.0511	-.30
	-.20	-.048	1.66	.436	-.061	-.0140	.0350	-.20
	-.10	-.052	1.66	.434	-.039	-.0158	.0197	-.10
	-.05	-.054	1.67	.432	-.020	-.0152	.0151	-.05
	0.00	-.039	1.66	.413	-.013	-.0115	.0099	0.00
	0.00	-.040	1.65	.409	-.015	-.0100	.0100	0.00
	.05	-.053	1.65	.431	-.003	-.0013	-.0005	.05
	.10	-.050	1.65	.436	.010	.0035	-.0062	.10
	.20	-.044	1.63	.446	.043	.0004	-.0177	.20
	.30	-.046	1.67	.465	.081	-.0089	-.0278	.30
	.40	-.048	1.73	.560	.151	-.0270	-.0197	.40
30	-.40	-.072	2.13	.776	-.215	-.0024	.0399	-.40
	-.30	-.054	2.01	.610	-.102	-.0126	.0390	-.30
	-.20	-.056	1.97	.584	-.070	-.0188	.0303	-.20
	-.10	-.055	1.93	.514	-.028	-.0182	.0182	-.10
	-.05	-.050	1.89	.472	-.028	-.0091	.0098	-.05
	0.00	-.043	1.88	.445	-.012	-.0060	.0065	0.00
	0.00	-.035	1.87	.449	-.014	-.0038	.0072	0.00
	.05	-.052	1.90	.475	-.000	-.0006	.0050	.05
	.10	-.053	1.93	.519	.007	.0034	.0007	.10
	.20	-.053	1.94	.605	.038	.0087	-.0085	.20
	.30	-.052	1.98	.674	.096	.0045	-.0115	.30
	.40	-.069	2.09	.790	.157	-.0141	-.0077	.40
35	-.40	-.087	2.50	.885	-.119	-.0140	.0237	-.40
	-.30	-.080	2.35	.811	-.103	-.0278	.0270	-.30
	-.20	-.081	2.21	.779	-.079	-.0407	.0168	-.20
	-.10	-.074	2.18	.622	-.018	-.0265	.0109	-.10
	-.05	-.075	2.19	.566	-.025	-.0142	.0044	-.05
	0.00	-.069	2.17	.519	-.013	-.0061	.0074	0.00
	0.00	-.056	2.17	.525	-.013	-.0069	.0088	0.00
	.05	-.073	2.15	.558	.020	.0010	.0138	.05
	.10	-.071	2.15	.626	.008	.0134	.0083	.10
	.20	-.074	2.16	.791	.052	.0283	.0041	.20
	.30	-.073	2.27	.802	.073	.0085	.0033	.30
	.40	-.080	2.43	.895	.088	-.0043	.0125	.40

X-29A ROTARY BALANCE DATA

9BWC BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
40	-.40	-.101	2.76	.927	.013	-.0194	.0059	-.40
	-.30	-.099	2.65	.932	-.057	-.0309	.0008	-.30
	-.20	-.101	2.47	.893	-.093	-.0471	-.0047	-.20
	-.10	-.088	2.33	.671	-.018	-.0463	.0032	-.10
	-.05	-.083	2.29	.587	.006	-.0377	.0056	-.05
	0.00	-.071	2.36	.588	-.017	-.0020	.0048	0.00
	0.00	-.072	2.36	.593	-.016	-.0040	.0062	0.00
	.05	-.081	2.26	.594	-.021	.0270	.0177	.05
	.10	-.083	2.28	.690	-.004	.0278	.0193	.10
	.20	-.090	2.42	.876	.050	.0274	.0275	.20
	.30	-.085	2.58	.921	.001	.0074	.0299	.30
	.40	-.093	2.75	.958	-.054	.0060	.0260	.40
45	-.40	-.121	2.99	1.019	.183	-.0278	.0137	-.40
	-.30	-.112	2.85	1.011	.050	-.0357	-.0239	-.30
	-.20	-.112	2.68	.939	-.049	-.0395	-.0365	-.20
	-.10	-.107	2.49	.724	-.082	-.0344	-.0309	-.10
	-.05	-.098	2.42	.599	-.038	-.0272	-.0117	-.05
	0.00	-.070	2.42	.569	-.019	.0005	.0138	0.00
	0.00	-.087	2.39	.541	-.030	.0106	.0143	0.00
	.05	-.097	2.38	.607	.008	.0217	.0372	.05
	.10	-.103	2.49	.732	.015	.0273	.0471	.10
	.20	-.106	2.68	.921	-.026	.0244	.0604	.20
	.30	-.107	2.86	1.029	-.098	.0214	.0525	.30
	.40	-.115	3.05	1.041	-.202	.0225	.0262	.40
50	-.40	-.139	3.22	1.086	.356	-.0447	.0605	-.40
	-.30	-.133	3.06	1.102	.180	-.0374	-.0108	-.30
	-.20	-.136	2.87	1.023	.042	-.0308	-.0500	-.20
	-.10	-.134	2.63	.743	-.055	-.0327	-.0653	-.10
	-.05	-.125	2.53	.602	-.059	-.0173	-.0437	-.05
	0.00	-.092	2.46	.540	-.028	.0102	.0318	0.00
	0.00	-.110	2.46	.540	-.018	.0111	.0320	0.00
	.05	-.123	2.53	.605	.006	.0153	.0708	.05
	.10	-.132	2.70	.787	-.033	.0331	.0720	.10
	.20	-.132	2.87	1.021	-.097	.0159	.0707	.20
	.30	-.129	3.03	1.108	-.231	.0288	.0367	.30
	.40	-.131	3.21	1.086	-.346	.0375	-.0108	.40
55	-.40	-.168	3.22	1.048	.334	-.0199	.1218	-.40
	-.30	-.147	3.02	1.035	.182	-.0191	.0341	-.30
	-.20	-.134	2.78	.939	-.002	-.0024	-.0288	-.20
	-.10	-.134	2.68	.787	-.103	.0042	-.0810	-.10
	-.05	-.123	2.60	.612	-.080	-.0104	-.0674	-.05
	0.00	-.090	2.53	.559	-.009	.0048	.0413	0.00
	0.00	-.092	2.54	.560	.006	.0054	.0424	0.00
	.05	-.123	2.60	.634	.030	.0050	.0813	.05
	.10	-.128	2.65	.694	.040	-.0079	.1021	.10
	.20	-.131	2.74	.944	-.056	-.0029	.0497	.20
	.30	-.142	2.99	1.023	-.197	.0092	-.0061	.30
	.40	-.163	3.18	1.043	-.331	.0131	-.0803	.40

X-29A ROTARY BALANCE DATA

9BWC BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
60	-.40	-.165	3.30	.738	.280	-.0118	.1419	-.40
	-.30	-.173	3.14	.873	.238	-.0010	.0988	-.30
	-.20	-.157	2.84	.636	.066	.0027	.0347	-.20
	-.10	-.166	2.70	.566	-.042	.0028	-.0365	-.10
	-.05	-.171	2.68	.590	-.079	.0002	-.0571	-.05
	0.00	-.125	2.66	.575	-.015	-.0002	.0228	0.00
	0.00	-.128	2.62	.583	.006	-.0003	.0452	0.00
	.05	-.171	2.69	.554	.022	-.0056	.0706	.05
	.10	-.167	2.72	.561	-.014	-.0077	.0553	.10
	.20	-.154	2.81	.653	-.106	-.0085	-.0081	.20
	.30	-.170	3.09	.887	-.225	-.0009	-.0584	.30
	.40	-.154	3.21	.729	-.359	.0063	-.1430	.40
65	-.40	-.150	3.22	.403	.180	-.0117	.1028	-.40
	-.30	-.154	3.03	.451	.127	-.0027	.0891	-.30
	-.20	-.161	2.88	.463	.019	.0019	.0220	-.20
	-.10	-.164	2.73	.462	-.049	.0002	-.0240	-.10
	-.05	-.168	2.72	.489	-.082	-.0005	-.0313	-.05
	0.00	-.140	2.73	.535	-.015	-.0020	.0326	0.00
	0.00	-.146	2.73	.546	.006	-.0021	.0340	0.00
	.05	-.167	2.73	.478	-.001	-.0039	.0451	.05
	.10	-.163	2.73	.456	-.022	-.0051	.0399	.10
	.20	-.158	2.87	.477	-.059	-.0062	.0026	.20
	.30	-.141	2.97	.458	-.092	.0025	-.0248	.30
	.40	-.138	3.22	.409	-.208	.0124	-.0602	.40
70	-.40	-.151	3.34	.203	.063	-.0154	.0693	-.40
	-.30	-.151	3.06	.224	.052	-.0114	.0423	-.30
	-.20	-.162	2.89	.289	-.002	-.0020	.0026	-.20
	-.10	-.166	2.78	.306	-.054	-.0015	-.0330	-.10
	-.05	-.166	2.73	.340	-.047	-.0022	-.0304	-.05
	0.00	-.152	2.77	.468	-.034	-.0002	.0038	0.00
	0.00	-.151	2.77	.456	-.032	-.0007	.0107	0.00
	.05	-.161	2.73	.319	.030	-.0005	.0534	.05
	.10	-.161	2.77	.296	.015	-.0013	.0536	.10
	.20	-.146	2.81	.239	-.050	.0049	.0153	.20
	.30	-.145	3.03	.239	-.092	.0114	-.0177	.30
	.40	-.145	3.29	.227	-.145	.0174	-.0445	.40
75	-.40	-.177	3.41	.086	.091	-.0275	.0698	-.40
	-.30	-.164	3.12	.112	.044	-.0206	.0318	-.30
	-.20	-.154	2.85	.078	.011	-.0182	.0020	-.20
	-.10	-.161	2.78	.146	-.038	-.0079	-.0465	-.10
	-.05	-.160	2.75	.178	-.051	-.0060	-.0415	-.05
	0.00	-.170	2.75	.251	-.026	-.0001	.0115	0.00
	0.00	-.148	2.77	.261	-.034	.0009	.0144	0.00
	.05	-.154	2.74	.156	.018	.0033	.0609	.05
	.10	-.153	2.77	.127	.011	.0063	.0620	.10
	.20	-.148	2.85	.094	-.043	.0139	.0088	.20
	.30	-.157	3.05	.143	-.076	.0214	-.0204	.30
	.40	-.172	3.34	.116	-.131	.0317	-.0484	.40

X-29A ROTARY BALANCE DATA

9BWC BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
80	-.40	-.189	3.37	-.045	.091	-.0435	.0753	-.40
	-.30	-.161	3.06	.007	.049	-.0331	.0451	-.30
	-.20	-.158	2.88	-.013	.023	-.0256	.0134	-.20
	-.10	-.161	2.81	.012	-.005	-.0153	-.0404	-.10
	-.05	-.163	2.78	.068	-.003	-.0105	-.0302	-.05
	0.00	-.153	2.78	.126	-.015	.0023	.0155	0.00
	0.00	-.153	2.77	.109	-.020	.0023	.0151	0.00
	.05	-.157	2.78	.046	-.002	.0086	.0495	.05
	.10	-.156	2.79	.001	-.004	.0114	.0479	.10
	.20	-.156	2.89	.001	-.034	.0216	-.0026	.20
	.30	-.163	3.08	.046	-.078	.0297	-.0304	.30
	.40	-.183	3.32	-.002	-.134	.0400	-.0612	.40
85	-.40	-.184	3.28	-.054	.086	-.0468	.0758	-.40
	-.30	-.179	3.00	-.026	.054	-.0381	.0465	-.30
	-.20	-.165	2.81	-.080	.016	-.0283	.0195	-.20
	-.10	-.163	2.72	-.079	.011	-.0173	-.0213	-.10
	-.05	-.166	2.69	-.019	.006	-.0131	-.0198	-.05
	0.00	-.180	2.65	.010	-.026	.0025	.0142	0.00
	0.00	-.160	2.71	.002	-.019	.0039	.0163	0.00
	.05	-.160	2.74	-.025	-.021	.0105	.0381	.05
	.10	-.155	2.72	-.099	-.021	.0149	.0306	.10
	.20	-.158	2.84	-.062	-.042	.0246	-.0085	.20
	.30	-.171	3.06	-.007	-.073	.0350	-.0334	.30
	.40	-.175	3.31	-.017	-.129	.0456	-.0634	.40
90	-.40	-.128	3.27	-.102	.102	-.0496	.0744	-.40
	-.30	-.180	2.98	-.108	.044	-.0409	.0479	-.30
	-.20	-.168	2.81	-.159	.024	-.0312	.0251	-.20
	-.10	-.156	2.68	-.194	-.013	-.0176	-.0127	-.10
	-.05	-.160	2.69	-.128	-.000	-.0127	-.0179	-.05
	0.00	-.161	2.66	-.118	-.025	.0057	.0190	0.00
	0.00	-.160	2.67	-.118	-.008	.0064	.0172	0.00
	0.00	-.034	-.10	-.018	-.035	-.0002	-.0003	0.00
	.05	-.158	2.70	-.142	-.022	.0122	.0321	.05
	.10	-.153	2.70	-.216	-.018	.0200	.0184	.10
	.20	-.162	2.82	-.152	-.036	.0310	-.0135	.20
	.30	-.176	2.97	-.085	-.074	.0409	-.0372	.30
	.40	-.128	3.23	-.088	-.073	.0552	-.0609	.40

***** X-29A ROTARY BALANCE DATA *****

9BWCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.40	.060	.04	-.031	.021	.1493	-.0082	-.40
	-.30	.054	.05	-.037	.009	.1091	-.0019	-.30
	-.20	.052	.08	-.042	.006	.0668	.0004	-.20
	-.10	.051	.11	-.042	.003	.0289	-.0004	-.10
	-.05	.051	.11	-.043	.005	.0113	-.0007	-.05
	0.00	.053	.09	-.049	.002	-.0048	-.0023	0.00
	0.00	.052	.11	-.054	.009	-.0042	-.0008	0.00
	.05	.053	.11	-.042	.010	-.0214	-.0009	.05
	.10	.051	.11	-.042	.013	-.0394	-.0014	.10
	.20	.049	.09	-.046	.015	-.0769	-.0010	.20
	.30	.048	.06	-.045	.020	-.1179	.0014	.30
	.40	.052	.06	-.044	.026	-.1559	.0065	.40
5	-.40	.047	.43	.094	-.037	.1329	.0098	-.40
	-.30	.040	.44	.085	-.031	.0996	.0101	-.30
	-.20	.033	.45	.087	-.016	.0651	.0093	-.20
	-.10	.029	.45	.092	-.005	.0283	.0052	-.10
	-.05	.029	.46	.093	.000	.0113	.0025	-.05
	0.00	.032	.44	.088	-.001	-.0056	-.0022	0.00
	0.00	.030	.45	.080	.011	-.0055	-.0005	0.00
	.05	.029	.46	.095	.013	-.0228	-.0037	.05
	.10	.028	.45	.094	.018	-.0398	-.0066	.10
	.20	.029	.45	.087	.032	-.0759	-.0107	.20
	.30	.035	.45	.084	.042	-.1100	-.0112	.30
	.40	.042	.44	.085	.068	-.1409	-.0111	.40
10	-.40	.041	.80	.211	-.107	.1042	.0324	-.40
	-.30	.034	.78	.218	-.077	.0790	.0212	-.30
	-.20	.019	.81	.236	-.041	.0563	.0149	-.20
	-.10	.003	.84	.250	-.017	.0270	.0075	-.10
	-.05	-.002	.84	.255	-.006	.0111	.0038	-.05
	0.00	.004	.80	.244	.005	-.0070	-.0022	0.00
	0.00	.000	.83	.240	.013	-.0059	-.0003	0.00
	.05	-.002	.84	.255	.023	-.0232	-.0051	.05
	.10	.002	.83	.250	.035	-.0393	-.0095	.10
	.20	.016	.79	.233	.061	-.0669	-.0174	.20
	.30	.029	.76	.219	.092	-.0892	-.0259	.30
	.40	.033	.80	.211	.111	-.1157	-.0386	.40
15	-.40	.028	1.05	.290	-.195	.0595	.0555	-.40
	-.30	.021	1.08	.313	-.129	.0521	.0364	-.30
	-.20	.007	1.10	.341	-.081	.0356	.0202	-.20
	-.10	-.005	1.14	.361	-.032	.0159	.0084	-.10
	-.05	-.009	1.16	.366	-.005	.0043	.0036	-.05
	0.00	-.002	1.14	.351	.013	-.0058	-.0017	0.00
	0.00	-.004	1.15	.353	.015	-.0060	-.0018	0.00
	.05	-.010	1.17	.370	.037	-.0157	-.0049	.05
	.10	-.007	1.15	.366	.050	-.0274	-.0097	.10
	.20	.004	1.10	.348	.092	-.0490	-.0227	.20
	.30	.013	1.08	.327	.135	-.0695	-.0429	.30
	.40	.018	1.05	.300	.168	-.0722	-.0654	.40

X-29A ROTARY BALANCE DATA

9BWCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
20	-.40	.004	1.35	.420	-.228	.0234	.0782	-.40
	-.30	.001	1.35	.400	-.175	.0079	.0627	-.30
	-.20	-.004	1.39	.419	-.113	.0032	.0355	-.20
	-.10	-.004	1.40	.399	-.045	.0003	.0145	-.10
	-.05	-.005	1.39	.397	-.016	-.0037	.0076	-.05
	0.00	.010	1.36	.382	.011	-.0062	-.0001	0.00
	0.00	.010	1.37	.385	.016	-.0055	-.0002	0.00
	.05	-.006	1.40	.401	.045	-.0085	-.0055	.05
	.10	-.008	1.41	.426	.079	-.0121	-.0128	.10
	.20	-.006	1.40	.428	.129	-.0184	-.0345	.20
	.30	-.004	1.36	.421	.187	-.0229	-.0620	.30
	.40	-.006	1.35	.431	.238	-.0344	-.0850	.40
25	-.40	-.006	1.67	.598	-.239	.0019	.0896	-.40
	-.30	-.008	1.64	.496	-.163	-.0151	.0820	-.30
	-.20	-.009	1.62	.457	-.100	-.0201	.0628	-.20
	-.10	-.012	1.62	.457	-.038	-.0185	.0319	-.10
	-.05	-.014	1.62	.454	-.012	-.0156	.0204	-.05
	0.00	.002	1.61	.438	.018	-.0056	.0039	0.00
	0.00	-.003	1.64	.439	.043	-.0070	.0024	0.00
	.05	-.019	1.65	.459	.053	.0020	-.0125	.05
	.10	-.017	1.64	.465	.074	.0076	-.0266	.10
	.20	-.012	1.62	.480	.133	.0087	-.0539	.20
	.30	-.014	1.65	.531	.197	.0032	-.0764	.30
	.40	-.010	1.68	.651	.269	-.0145	-.0790	.40
30	-.40	-.024	2.08	.858	-.303	-.0143	.0901	-.40
	-.30	-.016	1.98	.648	-.181	-.0237	.0785	-.30
	-.20	-.021	1.94	.602	-.095	-.0263	.0584	-.20
	-.10	-.018	1.90	.537	-.032	-.0196	.0276	-.10
	-.05	-.014	1.87	.498	.001	-.0096	.0109	-.05
	0.00	.001	1.85	.472	.021	-.0024	-.0014	0.00
	0.00	-.003	1.86	.473	.047	-.0058	-.0004	0.00
	.05	-.017	1.87	.501	.045	.0008	-.0058	.05
	.10	-.018	1.89	.545	.070	.0068	-.0193	.10
	.20	-.021	1.94	.636	.137	.0182	-.0482	.20
	.30	-.022	1.95	.729	.209	.0193	-.0702	.30
	.40	-.028	2.05	.856	.305	.0019	-.0837	.40
35	-.40	-.045	2.43	.945	-.229	-.0214	.0725	-.40
	-.30	-.038	2.28	.849	-.183	-.0390	.0678	-.30
	-.20	-.038	2.14	.794	-.076	-.0461	.0303	-.20
	-.10	-.030	2.10	.636	.008	-.0315	.0162	-.10
	-.05	-.030	2.12	.579	.010	-.0138	.0004	-.05
	0.00	-.004	2.10	.545	.026	-.0054	-.0000	0.00
	0.00	-.006	2.08	.545	.044	-.0066	.0011	0.00
	.05	-.035	2.14	.590	.060	.0020	.0061	.05
	.10	-.035	2.13	.655	.048	.0124	-.0051	.10
	.20	-.038	2.15	.815	.107	.0304	-.0200	.20
	.30	-.040	2.25	.844	.197	.0242	-.0638	.30
	.40	-.046	2.38	.945	.201	.0053	-.0606	.40

X-29A ROTARY BALANCE DATA

9BWCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
40	-.40	-.064	2.70	1.021	-.046	-.0211	.0419	-.40
	-.30	-.059	2.55	.934	-.104	-.0357	.0361	-.30
	-.20	-.062	2.37	.909	-.077	-.0510	.0051	-.20
	-.10	-.049	2.24	.680	-.003	-.0491	.0116	-.10
	-.05	-.043	2.20	.591	.018	-.0407	.0106	-.05
	0.00	-.028	2.27	.598	.009	-.0090	-.0004	0.00
	0.00	-.029	2.28	.603	-.000	-.0051	-.0007	0.00
	.05	-.044	2.20	.618	.003	.0294	.0056	.05
	.10	-.045	2.25	.718	.009	.0279	.0070	.10
	.20	-.050	2.36	.875	.097	.0343	-.0128	.20
	.30	-.055	2.53	.940	.104	.0175	-.0241	.30
	.40	-.062	2.65	1.021	.078	.0108	-.0343	.40
45	-.40	-.087	3.02	1.118	.035	-.0379	.0478	-.40
	-.30	-.077	2.88	1.055	-.009	-.0370	-.0034	-.30
	-.20	-.076	2.69	.967	-.081	-.0503	-.0101	-.20
	-.10	-.065	2.47	.749	-.060	-.0380	-.0250	-.10
	-.05	-.058	2.41	.621	-.023	-.0296	-.0051	-.05
	0.00	-.034	2.41	.619	.017	.0085	.0008	0.00
	0.00	-.049	2.39	.596	.015	.0153	-.0021	0.00
	.05	-.056	2.36	.644	.055	.0219	.0245	.05
	.10	-.062	2.49	.769	.025	.0322	.0236	.10
	.20	-.068	2.65	.952	.034	.0348	.0160	.20
	.30	-.072	2.86	1.064	-.013	.0283	.0033	.30
	.40	-.083	2.96	1.085	-.049	.0303	-.0541	.40
50	-.40	-.113	3.22	1.171	.266	-.0497	.0756	-.40
	-.30	-.101	3.10	1.144	.160	-.0409	-.0051	-.30
	-.20	-.097	2.91	1.049	.074	-.0293	-.0540	-.20
	-.10	-.085	2.63	.765	-.034	-.0352	-.0570	-.10
	-.05	-.078	2.55	.629	-.023	-.0195	-.0379	-.05
	0.00	-.058	2.50	.586	.060	.0116	.0233	0.00
	0.00	-.071	2.51	.586	.047	.0098	.0153	0.00
	.05	-.078	2.54	.652	.049	.0163	.0603	.05
	.10	-.087	2.72	.827	-.016	.0362	.0492	.10
	.20	-.091	2.89	1.044	-.049	.0180	.0513	.20
	.30	-.093	3.05	1.145	-.117	.0289	.0049	.30
	.40	-.101	3.16	1.127	-.168	.0422	-.0676	.40
55	-.40	-.130	3.25	1.097	.320	-.0226	.1287	-.40
	-.30	-.109	3.04	1.063	.178	-.0136	.0164	-.30
	-.20	-.101	2.81	.948	.057	-.0010	-.0377	-.20
	-.10	-.100	2.72	.816	-.032	.0038	-.0966	-.10
	-.05	-.091	2.65	.638	-.031	-.0125	-.0639	-.05
	0.00	-.069	2.59	.606	.050	.0057	.0335	0.00
	0.00	-.069	2.58	.606	.053	.0053	.0334	0.00
	.05	-.094	2.64	.677	.055	.0049	.0780	.05
	.10	-.100	2.69	.735	.057	-.0116	.0970	.10
	.20	-.099	2.79	.954	-.031	-.0038	.0355	.20
	.30	-.107	3.00	1.030	-.147	.0038	-.0236	.30
	.40	-.126	3.19	1.040	-.227	.0114	-.1184	.40

X-29A ROTARY BALANCE DATA

9BWCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
60	-.40	-.125	3.21	.744	.249	-.0183	.1461	-.40
	-.30	-.145	3.12	.893	.243	-.0014	.1016	-.30
	-.20	-.135	2.85	.656	.096	.0025	.0306	-.20
	-.10	-.146	2.73	.593	.014	.0030	-.0433	-.10
	-.05	-.151	2.70	.608	-.033	.0006	-.0656	-.05
	0.00	-.091	2.68	.597	.017	.0028	.0267	0.00
	0.00	-.091	2.67	.603	.012	.0020	.0265	0.00
	.05	-.147	2.69	.595	.044	-.0070	.0703	.05
	.10	-.143	2.72	.610	.009	-.0094	.0514	.10
	.20	-.131	2.81	.684	-.065	-.0077	-.0189	.20
	.30	-.134	3.06	.826	-.178	-.0014	-.0899	.30
	.40	-.118	3.12	.704	-.201	.0107	-.1596	.40
65	-.40	-.113	3.21	.424	.159	-.0196	.1221	-.40
	-.30	-.118	2.98	.452	.112	-.0057	.0724	-.30
	-.20	-.129	2.87	.486	.046	.0008	.0150	-.20
	-.10	-.134	2.73	.492	-.009	-.0003	-.0312	-.10
	-.05	-.142	2.72	.519	-.033	-.0013	-.0344	-.05
	0.00	-.109	2.71	.575	-.021	-.0012	-.0043	0.00
	0.00	-.113	2.72	.565	-.015	-.0024	.0228	0.00
	.05	-.139	2.70	.511	.013	-.0043	.0430	.05
	.10	-.132	2.71	.496	-.008	-.0058	.0351	.10
	.20	-.122	2.81	.498	-.051	-.0064	-.0073	.20
	.30	-.109	2.93	.481	-.058	.0020	-.0393	.30
	.40	-.101	3.10	.392	-.070	.0160	-.1051	.40
70	-.40	-.112	3.28	.277	.032	-.0256	.0960	-.40
	-.30	-.123	3.01	.256	.055	-.0132	.0411	-.30
	-.20	-.141	2.84	.317	.008	-.0029	-.0081	-.20
	-.10	-.153	2.75	.328	-.026	-.0019	-.0407	-.10
	-.05	-.156	2.72	.369	-.032	-.0020	-.0351	-.05
	0.00	-.148	2.76	.494	-.003	-.0011	.0045	0.00
	0.00	-.148	2.77	.471	-.006	-.0011	.0067	0.00
	.05	-.154	2.71	.352	.035	-.0022	.0542	.05
	.10	-.151	2.75	.341	.021	-.0026	.0478	.10
	.20	-.128	2.76	.264	-.030	.0043	.0120	.20
	.30	-.117	2.96	.270	-.048	.0119	-.0291	.30
	.40	-.108	3.21	.274	-.014	.0274	-.0993	.40
75	-.40	-.144	3.34	.142	.036	-.0397	.1043	-.40
	-.30	-.132	3.07	.155	.048	-.0233	.0331	-.30
	-.20	-.125	2.84	.124	.036	-.0141	-.0075	-.20
	-.10	-.128	2.75	.154	-.003	-.0062	-.0596	-.10
	-.05	-.129	2.72	.202	-.010	-.0048	-.0457	-.05
	0.00	-.118	2.75	.291	-.001	-.0012	.0119	0.00
	0.00	-.121	2.75	.285	-.016	-.0009	.0106	0.00
	.05	-.124	2.69	.180	.018	.0007	.0683	.05
	.10	-.122	2.72	.139	-.012	.0035	.0670	.10
	.20	-.119	2.80	.121	-.038	.0116	.0043	.20
	.30	-.127	3.01	.174	-.045	.0211	-.0305	.30
	.40	-.141	3.26	.168	-.017	.0409	-.1040	.40

X-29A ROTARY BALANCE DATA

9BWCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
80	-.40	-.162	3.28	.020	.011	-.0524	.1217	-.40
	-.30	-.132	3.04	.044	.048	-.0326	.0433	-.30
	-.20	-.131	2.85	.023	.041	-.0233	.0073	-.20
	-.10	-.132	2.74	.032	.047	-.0117	-.0489	-.10
	-.05	-.134	2.74	.098	.040	-.0090	-.0385	-.05
	0.00	-.114	2.73	.152	-.001	.0010	.0134	0.00
	0.00	-.116	2.71	.136	-.016	.0020	.0196	0.00
	.05	-.130	2.73	.073	-.010	.0033	.0558	.05
	.10	-.130	2.74	.027	-.034	.0076	.0546	.10
	.20	-.133	2.82	.039	-.029	.0184	-.0057	.20
	.30	-.133	3.01	.071	-.048	.0312	-.0432	.30
	.40	-.153	3.25	.043	.001	.0507	-.1202	.40
85	-.40	-.171	3.26	-.009	.007	-.0602	.1226	-.40
	-.30	-.164	3.03	.005	.056	-.0398	.0495	-.30
	-.20	-.150	2.83	-.041	.036	-.0292	.0160	-.20
	-.10	-.140	2.73	-.072	.034	-.0154	-.0313	-.10
	-.05	-.144	2.74	-.002	.039	-.0106	-.0333	-.05
	0.00	-.125	2.71	.038	.017	.0007	.0098	0.00
	0.00	-.148	2.68	.028	-.005	.0014	.0133	0.00
	.05	-.145	2.73	-.013	-.036	.0061	.0482	.05
	.10	-.139	2.71	-.073	-.031	.0137	.0383	.10
	.20	-.143	2.78	-.042	-.041	.0264	-.0165	.20
	.30	-.163	2.98	.020	-.036	.0359	-.0526	.30
	.40	-.168	3.23	.009	.031	.0565	-.1282	.40
90	-.40	-.116	3.23	-.037	.033	-.0624	.1196	-.40
	-.30	-.176	2.95	-.052	.051	-.0416	.0534	-.30
	-.20	-.162	2.79	-.127	.035	-.0328	.0235	-.20
	-.10	-.155	2.69	-.178	.022	-.0179	-.0192	-.10
	-.05	-.159	2.68	-.106	.042	-.0117	-.0259	-.05
	0.00	-.139	2.64	-.083	.024	.0019	.0120	0.00
	0.00	-.140	2.64	-.079	-.007	.0048	.0224	0.00
	.05	-.157	2.65	-.122	-.025	.0082	.0364	.05
	.10	-.153	2.67	-.180	-.013	.0170	.0205	.10
	.20	-.158	2.76	-.114	-.017	.0301	-.0183	.20
	.30	-.173	2.93	-.048	-.028	.0411	-.0522	.30
	.40	-.109	3.17	-.026	.071	.0655	-.1169	.40

***** X-29A ROTARY BALANCE DATA *****

9BWCVp+10 BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.40	.065	-.01	-.014	-.174	.1387	.0076	-.40
	-.30	.056	.03	-.031	-.164	.1035	.0143	-.30
	-.20	.055	.07	-.040	-.152	.0671	.0145	-.20
	-.10	.056	.10	-.043	-.146	.0320	.0156	-.10
	-.05	.057	.11	-.047	-.145	.0152	.0163	-.05
	0.00	.054	.08	-.057	-.162	-.0006	.0156	0.00
	0.00	.055	.08	-.058	-.163	-.0006	.0159	0.00
	.05	.058	.11	-.058	-.150	-.0179	.0193	.05
	.10	.055	.11	-.063	-.154	-.0363	.0207	.10
	.20	.053	.10	-.081	-.167	-.0733	.0234	.20
	.30	.050	.09	-.098	-.175	-.1131	.0244	.30
	.40	.050	.12	-.109	-.182	-.1501	.0254	.40
5	-.40	.052	.41	.093	-.211	.1173	.0258	-.40
	-.30	.044	.41	.080	-.196	.0887	.0274	-.30
	-.20	.035	.43	.091	-.173	.0628	.0265	-.20
	-.10	.031	.43	.097	-.161	.0295	.0230	-.10
	-.05	.031	.43	.095	-.156	.0131	.0206	-.05
	0.00	.032	.42	.087	-.155	-.0030	.0171	0.00
	0.00	.030	.44	.079	-.154	-.0032	.0208	0.00
	.05	.030	.44	.086	-.154	-.0207	.0166	.05
	.10	.028	.43	.077	-.153	-.0388	.0148	.10
	.20	.029	.45	.056	-.147	-.0766	.0119	.20
	.30	.031	.46	.031	-.136	-.1145	.0075	.30
	.40	.036	.48	.014	-.120	-.1510	.0020	.40
10	-.40	.040	.69	.236	-.248	.0833	.0470	-.40
	-.30	.029	.72	.248	-.229	.0692	.0449	-.30
	-.20	.015	.75	.263	-.198	.0456	.0372	-.20
	-.10	-.004	.80	.267	-.170	.0234	.0290	-.10
	-.05	-.011	.81	.266	-.159	.0092	.0252	-.05
	0.00	-.009	.82	.255	-.146	-.0071	.0212	0.00
	0.00	-.012	.81	.251	-.158	-.0074	.0235	0.00
	.05	-.015	.82	.261	-.145	-.0243	.0162	.05
	.10	-.013	.82	.250	-.137	-.0414	.0111	.10
	.20	-.002	.82	.222	-.119	-.0752	.0019	.20
	.30	.011	.81	.196	-.088	-.1058	-.0092	.30
	.40	.018	.82	.176	-.043	-.1318	-.0242	.40
15	-.40	.023	1.03	.349	-.291	.0571	.0668	-.40
	-.30	.015	1.02	.330	-.260	.0349	.0634	-.30
	-.20	-.002	1.06	.358	-.232	.0204	.0511	-.20
	-.10	-.013	1.09	.371	-.189	-.0020	.0339	-.10
	-.05	-.018	1.12	.377	-.170	-.0108	.0263	-.05
	0.00	-.012	1.12	.368	-.154	-.0194	.0182	0.00
	0.00	-.013	1.12	.367	-.153	-.0213	.0186	0.00
	.05	-.028	1.16	.379	-.125	-.0319	.0136	.05
	.10	-.029	1.16	.380	-.111	-.0442	.0087	.10
	.20	-.019	1.14	.362	-.068	-.0694	-.0061	.20
	.30	-.005	1.13	.340	-.029	-.0912	-.0269	.30
	.40	-.001	1.18	.325	.016	-.1119	-.0543	.40

X-29A ROTARY BALANCE DATA

9BWCVp+10 BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
20	-.40	.006	1.40	.482	-.296	.0345	.0807	-.40
	-.30	-.000	1.38	.435	-.260	.0105	.0746	-.30
	-.20	-.013	1.40	.436	-.232	-.0103	.0625	-.20
	-.10	-.020	1.43	.436	-.178	-.0259	.0412	-.10
	-.05	-.021	1.43	.441	-.157	-.0327	.0292	-.05
	0.00	-.006	1.40	.424	-.134	-.0378	.0163	0.00
	0.00	-.009	1.42	.428	-.127	-.0371	.0169	0.00
	.05	-.024	1.45	.455	-.094	-.0383	.0062	.05
	.10	-.022	1.44	.457	-.069	-.0394	-.0037	.10
	.20	-.020	1.45	.446	-.008	-.0464	-.0244	.20
	.30	-.014	1.43	.453	.051	-.0516	-.0450	.30
	.40	-.008	1.42	.457	.115	-.0591	-.0632	.40
25	-.40	.002	1.69	.640	-.217	.0131	.0637	-.40
	-.30	.001	1.64	.531	-.148	-.0085	.0510	-.30
	-.20	-.012	1.68	.509	-.112	-.0179	.0378	-.20
	-.10	-.018	1.68	.498	-.071	-.0208	.0195	-.10
	-.05	-.020	1.69	.504	-.056	-.0202	.0104	-.05
	0.00	-.007	1.68	.504	-.041	-.0167	.0002	0.00
	0.00	-.010	1.67	.502	-.042	-.0178	.0011	0.00
	.05	-.023	1.68	.513	-.032	-.0200	-.0099	.05
	.10	-.021	1.66	.524	-.008	-.0155	-.0195	.10
	.20	-.015	1.67	.578	.032	-.0122	-.0352	.20
	.30	-.015	1.67	.600	.077	-.0161	-.0508	.30
	.40	-.020	1.72	.626	.153	-.0280	-.0748	.40
30	-.40	-.009	2.01	.768	-.191	-.0049	.0421	-.40
	-.30	.001	1.90	.596	-.096	-.0149	.0368	-.30
	-.20	-.003	1.87	.539	-.024	-.0143	.0298	-.20
	-.10	-.022	1.94	.580	-.006	-.0115	.0119	-.10
	-.05	-.028	1.97	.606	-.003	-.0088	.0017	-.05
	0.00	-.017	1.98	.627	.003	.0015	-.0048	0.00
	0.00	-.029	1.99	.629	.011	-.0019	-.0045	0.00
	.05	-.033	1.98	.649	.013	.0005	-.0123	.05
	.10	-.031	1.97	.689	.026	.0042	-.0240	.10
	.20	-.027	1.98	.764	.075	.0020	-.0290	.20
	.30	-.024	1.98	.814	.117	-.0013	-.0557	.30
	.40	-.027	2.05	.856	.184	-.0057	-.0866	.40
35	-.40	-.039	2.35	.968	-.225	-.0285	.0182	-.40
	-.30	-.017	2.21	.728	-.088	-.0402	.0199	-.30
	-.20	-.017	2.13	.603	.013	-.0171	.0211	-.20
	-.10	-.033	2.18	.658	.036	.0006	.0082	-.10
	-.05	-.038	2.20	.683	.042	.0023	-.0003	-.05
	0.00	-.028	2.21	.699	.033	.0057	-.0038	0.00
	0.00	-.043	2.21	.700	.041	.0042	-.0024	0.00
	.05	-.050	2.26	.771	.052	.0065	-.0029	.05
	.10	-.047	2.23	.790	.052	.0054	-.0075	.10
	.20	-.047	2.27	.894	.090	.0043	-.0194	.20
	.30	-.040	2.28	.960	.152	.0045	-.0441	.30
	.40	-.047	2.37	1.013	.205	.0057	-.0869	.40

X-29A ROTARY BALANCE DATA

9BWCVp+10 BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
40	-.40	-.089	2.53	1.176	-.260	-.0564	.0342	-.40
	-.30	-.084	2.05	.939	-.136	-.0627	-.0064	-.30
	-.20	-.091	1.98	.680	.020	-.0478	.0101	-.20
	-.10	-.102	1.90	.722	.082	.0020	.0115	-.10
	-.05	-.113	1.95	.774	.062	.0033	.0130	-.05
	0.00	-.080	2.22	.819	.057	.0074	.0119	0.00
	0.00	-.098	2.24	.817	.054	.0062	.0127	0.00
	.05	-.105	2.21	.872	.051	.0108	.0055	.05
	.10	-.105	2.21	.932	.051	.0036	.0027	.10
	.20	-.102	2.17	.978	.053	.0008	-.0128	.20
	.30	-.103	2.19	1.062	.101	.0034	-.0299	.30
	.40	-.124	2.27	1.135	.104	.0104	-.0622	.40
45	-.40	-.122	2.52	1.109	-.132	-.0398	.0481	-.40
	-.30	-.128	2.27	.980	-.209	-.0780	.0016	-.30
	-.20	-.118	2.03	.752	-.085	-.0580	-.0169	-.20
	-.10	-.127	2.06	.708	.071	-.0090	.0399	-.10
	-.05	-.136	2.14	.781	.041	.0006	.0362	-.05
	0.00	-.125	2.22	.863	.006	.0050	.0341	0.00
	0.00	-.142	2.21	.856	.003	.0036	.0335	0.00
	.05	-.135	2.31	.915	-.019	.0106	.0226	.05
	.10	-.136	2.33	.966	-.055	.0109	.0179	.10
	.20	-.131	2.40	1.022	-.109	.0124	-.0018	.20
	.30	-.134	2.48	1.069	-.101	.0171	-.0026	.30
	.40	-.131	2.56	1.088	-.064	.0168	-.0354	.40
50	-.40	-.091	3.15	1.116	.090	-.0436	.0566	-.40
	-.30	-.098	3.01	.998	-.020	-.0481	-.0103	-.30
	-.20	-.091	2.55	.759	-.105	-.0477	-.0433	-.20
	-.10	-.103	2.56	.678	.063	-.0024	.0425	-.10
	-.05	-.118	2.65	.807	.041	-.0057	.0696	-.05
	0.00	-.116	2.54	.851	.047	-.0240	.0879	0.00
	0.00	-.136	2.53	.826	.049	-.0242	.0867	0.00
	.05	-.149	2.57	.927	.017	-.0334	.0816	.05
	.10	-.147	2.77	1.067	-.088	-.0039	.0552	.10
	.20	-.135	2.88	1.116	-.204	.0063	.0219	.20
	.30	-.130	3.03	1.106	-.219	.0213	.0035	.30
	.40	-.122	3.15	1.134	-.128	.0295	-.0239	.40
55	-.40	-.096	3.03	.896	.090	-.0392	.1095	-.40
	-.30	-.108	3.05	.920	.105	-.0446	.0082	-.30
	-.20	-.103	2.73	.728	-.071	-.0414	-.0581	-.20
	-.10	-.114	2.66	.668	.041	-.0085	.0494	-.10
	-.05	-.118	2.64	.666	.049	-.0182	.0701	-.05
	0.00	-.114	2.68	.801	.013	-.0188	.0761	0.00
	0.00	-.113	2.65	.791	.020	-.0193	.0719	0.00
	.05	-.128	2.69	.832	-.029	-.0230	.0501	.05
	.10	-.129	2.72	.884	-.069	-.0245	.0332	.10
	.20	-.127	2.89	1.011	-.160	-.0206	.0035	.20
	.30	-.129	3.10	1.076	-.286	.0013	-.0231	.30
	.40	-.137	3.37	1.049	-.297	.0264	-.0649	.40

X-29A ROTARY BALANCE DATA

9BWCVp+10 BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
60	-.40	-.101	3.06	.690	.037	-.0357	.1465	-.40
	-.30	-.119	2.96	.772	.013	-.0397	.0249	-.30
	-.20	-.137	2.87	.712	-.036	-.0366	-.0399	-.20
	-.10	-.151	2.72	.603	.011	-.0184	.0413	-.10
	-.05	-.152	2.71	.558	.001	-.0195	.0331	-.05
	0.00	-.101	2.65	.560	-.072	-.0195	.0067	0.00
	0.00	-.106	2.64	.558	-.077	-.0190	.0081	0.00
	.05	-.153	2.71	.572	-.100	-.0220	-.0182	.05
	.10	-.153	2.76	.590	-.127	-.0246	-.0509	.10
	.20	-.155	2.94	.744	-.226	-.0259	-.1003	.20
	.30	-.144	3.05	.693	-.328	-.0231	-.1577	.30
	.40	-.124	3.14	.534	-.321	-.0091	-.1868	.40
65	-.40	-.097	3.13	.476	-.129	-.0423	.0798	-.40
	-.30	-.113	2.93	.539	-.087	-.0298	.0076	-.30
	-.20	-.129	2.85	.564	-.089	-.0247	-.0280	-.20
	-.10	-.145	2.78	.531	-.030	-.0201	.0134	-.10
	-.05	-.144	2.75	.466	-.019	-.0205	.0219	-.05
	0.00	-.125	2.72	.453	-.083	-.0188	.0074	0.00
	0.00	-.126	2.73	.457	-.081	-.0187	.0047	0.00
	.05	-.145	2.75	.454	-.081	-.0218	-.0128	.05
	.10	-.145	2.80	.457	-.112	-.0224	-.0432	.10
	.20	-.139	2.90	.457	-.179	-.0238	-.0892	.20
	.30	-.133	3.03	.404	-.231	-.0164	-.1072	.30
	.40	-.132	3.22	.337	-.270	-.0016	-.1550	.40
70	-.40	-.117	3.24	.385	-.145	-.0522	.0756	-.40
	-.30	-.120	2.99	.329	-.121	-.0363	.0069	-.30
	-.20	-.126	2.82	.284	-.138	-.0256	-.0396	-.20
	-.10	-.154	2.81	.440	-.050	-.0217	.0029	-.10
	-.05	-.154	2.78	.345	-.012	-.0216	.0256	-.05
	0.00	-.141	2.75	.356	-.065	-.0203	.0228	0.00
	0.00	-.142	2.77	.355	-.058	-.0203	.0194	0.00
	.05	-.153	2.79	.336	-.072	-.0198	.0026	.05
	.10	-.152	2.82	.329	-.097	-.0200	-.0145	.10
	.20	-.140	2.90	.261	-.148	-.0216	-.0391	.20
	.30	-.130	3.07	.164	-.203	-.0093	-.0735	.30
	.40	-.124	3.35	.078	-.154	-.0034	-.1149	.40
75	-.40	-.138	3.27	.303	-.136	-.0601	.0918	-.40
	-.30	-.125	3.03	.234	-.114	-.0419	.0181	-.30
	-.20	-.123	2.85	.150	-.140	-.0321	-.0285	-.20
	-.10	-.130	2.80	.197	-.054	-.0279	-.0260	-.10
	-.05	-.134	2.77	.188	-.006	-.0239	.0096	-.05
	0.00	-.127	2.75	.235	-.078	-.0203	.0343	0.00
	0.00	-.129	2.75	.233	-.072	-.0206	.0294	0.00
	.05	-.138	2.75	.213	-.085	-.0180	.0187	.05
	.10	-.138	2.78	.184	-.128	-.0173	.0058	.10
	.20	-.130	2.86	.094	-.189	-.0106	-.0163	.20
	.30	-.131	3.09	.033	-.196	-.0031	-.0555	.30
	.40	-.143	3.41	-.044	-.156	.0052	-.1161	.40

X-29A ROTARY BALANCE DATA

9BWCVp+10 BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
80	-.40	-.147	3.30	.202	-.100	-.0682	.1034	-.40
	-.30	-.134	3.05	.150	-.108	-.0499	.0241	-.30
	-.20	-.129	2.90	.067	-.139	-.0378	-.0147	-.20
	-.10	-.124	2.80	.048	-.083	-.0325	-.0295	-.10
	-.05	-.129	2.78	.070	-.036	-.0288	-.0155	-.05
	0.00	-.119	2.77	.106	-.122	-.0170	.0178	0.00
	0.00	-.143	2.75	.116	-.101	-.0206	.0115	0.00
	.05	-.133	2.77	.108	-.117	-.0143	.0204	.05
	.10	-.132	2.80	.058	-.176	-.0128	.0227	.10
	.20	-.135	2.88	-.019	-.208	-.0022	-.0190	.20
	.30	-.143	3.12	-.052	-.227	.0093	-.0537	.30
	.40	-.151	3.42	-.122	-.183	.0272	-.1155	.40
85	-.40	-.133	3.31	.197	-.103	-.0755	.1066	-.40
	-.30	-.152	3.07	.110	-.122	-.0569	.0274	-.30
	-.20	-.147	2.88	.002	-.155	-.0449	-.0125	-.20
	-.10	-.140	2.76	-.069	-.100	-.0350	-.0202	-.10
	-.05	-.146	2.78	-.020	-.066	-.0319	-.0258	-.05
	0.00	-.138	2.75	.004	-.124	-.0224	.0030	0.00
	0.00	-.142	2.72	.029	-.096	-.0258	-.0040	0.00
	.05	-.147	2.74	.027	-.148	-.0138	.0180	.05
	.10	-.144	2.74	-.047	-.189	-.0088	.0145	.10
	.20	-.150	2.86	-.091	-.214	.0048	-.0298	.20
	.30	-.158	3.12	-.103	-.239	.0155	-.0583	.30
	.40	-.121	3.38	-.113	-.163	.0382	-.1194	.40
90	-.40	-.114	3.29	.086	-.142	-.0844	.1009	-.40
	-.30	-.143	2.99	.024	-.136	-.0609	.0371	-.30
	-.20	-.146	2.85	-.075	-.171	-.0484	-.0091	-.20
	-.10	-.138	2.72	-.201	-.135	-.0379	-.0122	-.10
	-.05	-.139	2.74	-.158	-.094	-.0338	-.0195	-.05
	0.00	-.131	2.72	-.058	-.125	-.0244	-.0008	0.00
	0.00	-.152	2.71	-.077	-.109	-.0252	.0000	0.00
	0.00	-.020	-.00	-.003	-.100	.0003	.0000	0.00
	.05	-.147	2.74	-.053	-.151	-.0131	.0153	.05
	.10	-.145	2.72	-.175	-.200	-.0048	.0009	.10
	.20	-.154	2.79	-.186	-.204	.0125	-.0386	.20
	.30	-.153	3.06	-.175	-.236	.0221	-.0628	.30
	.40	-.114	3.34	-.188	-.187	.0430	-.1117	.40

***** X-29A ROTARY BALANCE DATA *****

9BWCVp-10 BETA=-10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.40	.042	.17	-.078	.197	.1511	-.0296	-.40
	-.30	.039	.14	-.066	.194	.1103	-.0263	-.30
	-.20	.042	.16	-.052	.169	.0681	-.0231	-.20
	-.10	.042	.18	-.037	.157	.0300	-.0209	-.10
	-.05	.043	.19	-.030	.151	.0115	-.0195	-.05
	0.00	.044	.15	-.028	.153	-.0050	-.0210	0.00
	0.00	.045	.14	-.027	.152	-.0048	-.0207	0.00
	.05	.044	.18	-.014	.154	-.0217	-.0169	.05
	.10	.042	.18	-.010	.156	-.0394	-.0159	.10
	.20	.038	.16	-.007	.167	-.0735	-.0152	.20
	.30	.037	.12	-.000	.192	-.1098	-.0136	.30
	.40	.048	.08	.005	.203	-.1429	-.0105	.40
5	-.40	.028	.56	.031	.135	.1455	-.0028	-.40
	-.30	.020	.53	.057	.144	.1085	-.0079	-.30
	-.20	.018	.52	.091	.137	.0695	-.0114	-.20
	-.10	.019	.51	.118	.133	.0309	-.0146	-.10
	-.05	.016	.52	.127	.141	.0134	-.0163	-.05
	0.00	.021	.49	.127	.146	-.0033	-.0218	0.00
	0.00	.021	.49	.129	.143	-.0035	-.0216	0.00
	.05	.018	.51	.139	.144	-.0200	-.0215	.05
	.10	.017	.51	.139	.151	-.0364	-.0236	.10
	.20	.020	.50	.123	.179	-.0689	-.0258	.20
	.30	.029	.47	.101	.214	-.0941	-.0241	.30
	.40	.038	.47	.090	.224	-.1221	-.0259	.40
10	-.40	.021	.92	.191	.056	.1290	.0278	-.40
	-.30	.014	.88	.205	.088	.1017	.0122	-.30
	-.20	.002	.89	.235	.103	.0708	.0004	-.20
	-.10	-.007	.89	.263	.110	.0373	-.0105	-.10
	-.05	-.009	.90	.273	.118	.0202	-.0155	-.05
	0.00	.001	.86	.264	.132	.0039	-.0234	0.00
	0.00	-.004	.88	.260	.136	.0030	-.0210	0.00
	.05	.003	.88	.272	.137	-.0120	-.0251	.05
	.10	.009	.85	.269	.152	-.0254	-.0288	.10
	.20	.022	.81	.255	.194	-.0477	-.0348	.20
	.30	.030	.79	.243	.247	-.0719	-.0411	.30
	.40	.037	.76	.212	.272	-.0871	-.0468	.40
15	-.40	.013	1.24	.268	-.053	.1054	.0604	-.40
	-.30	.001	1.20	.287	.022	.0895	.0331	-.30
	-.20	-.012	1.21	.321	.050	.0677	.0110	-.20
	-.10	-.021	1.22	.342	.085	.0425	-.0059	-.10
	-.05	-.020	1.22	.347	.100	.0301	-.0126	-.05
	0.00	-.008	1.18	.336	.118	.0190	-.0217	0.00
	0.00	-.006	1.17	.333	.116	.0191	-.0215	0.00
	.05	-.015	1.19	.345	.136	.0084	-.0266	.05
	.10	-.011	1.16	.342	.162	-.0009	-.0334	.10
	.20	-.001	1.13	.323	.208	-.0240	-.0471	.20
	.30	.012	1.08	.295	.244	-.0399	-.0561	.30
	.40	.022	1.08	.301	.264	-.0614	-.0607	.40

X-29A ROTARY BALANCE DATA

9BWCVp-10 BETA=-10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
20	-.40	-.001	1.48	.401	-.127	.0591	.0762	-.40
	-.30	-.010	1.49	.392	-.057	.0538	.0540	-.30
	-.20	-.016	1.50	.399	-.002	.0468	.0314	-.20
	-.10	-.017	1.50	.428	.044	.0377	.0079	-.10
	-.05	-.016	1.49	.416	.066	.0361	-.0036	-.05
	0.00	.000	1.46	.399	.081	.0339	-.0160	0.00
	0.00	-.000	1.46	.400	.082	.0338	-.0158	0.00
	.05	-.016	1.48	.414	.113	.0292	-.0255	.05
	.10	-.016	1.47	.418	.139	.0221	-.0366	.10
	.20	-.011	1.45	.417	.196	.0062	-.0553	.20
	.30	-.003	1.44	.414	.253	-.0139	-.0681	.30
	.40	.002	1.45	.433	.292	-.0367	-.0746	.40
25	-.40	-.018	1.80	.570	-.178	.0269	.0877	-.40
	-.30	-.012	1.72	.532	-.102	.0145	.0612	-.30
	-.20	-.013	1.71	.497	-.059	.0096	.0470	-.20
	-.10	-.016	1.73	.465	-.036	.0165	.0266	-.10
	-.05	-.017	1.74	.467	-.016	.0190	.0162	-.05
	0.00	-.005	1.71	.458	-.001	.0165	.0062	0.00
	0.00	-.004	1.73	.466	-.006	.0186	.0059	0.00
	.05	-.019	1.76	.479	.019	.0177	-.0046	.05
	.10	-.020	1.77	.492	.026	.0157	-.0127	.10
	.20	-.016	1.76	.504	.095	.0130	-.0304	.20
	.30	-.009	1.73	.510	.176	.0043	-.0436	.30
	.40	-.006	1.75	.598	.244	-.0163	-.0521	.40
30	-.40	-.035	2.12	.826	-.194	.0046	.1019	-.40
	-.30	-.030	2.07	.764	-.146	-.0034	.0665	-.30
	-.20	-.030	2.05	.710	-.096	-.0062	.0456	-.20
	-.10	-.029	2.01	.619	-.057	.0009	.0343	-.10
	-.05	-.030	2.03	.609	-.057	.0031	.0233	-.05
	0.00	-.013	2.03	.606	-.068	-.0047	.0136	0.00
	0.00	-.013	2.04	.618	-.065	-.0024	.0131	0.00
	.05	-.030	2.04	.590	-.053	.0045	.0035	.05
	.10	-.024	2.02	.577	-.046	.0043	-.0043	.10
	.20	-.007	1.95	.524	.005	.0078	-.0165	.20
	.30	-.007	1.97	.596	.095	.0095	-.0197	.30
	.40	-.021	2.07	.768	.216	.0009	-.0188	.40
35	-.40	-.060	2.48	1.014	-.202	-.0067	.0936	-.40
	-.30	-.054	2.39	.949	-.166	-.0125	.0486	-.30
	-.20	-.055	2.36	.884	-.121	-.0161	.0340	-.20
	-.10	-.047	2.33	.774	-.103	-.0115	.0210	-.10
	-.05	-.049	2.34	.761	-.105	-.0131	.0135	-.05
	0.00	-.027	2.30	.714	-.101	-.0133	.0097	0.00
	0.00	-.026	2.31	.712	-.101	-.0107	.0074	0.00
	.05	-.043	2.29	.676	-.098	-.0098	.0047	.05
	.10	-.037	2.27	.649	-.087	-.0082	-.0015	.10
	.20	-.022	2.23	.593	-.004	.0178	-.0062	.20
	.30	-.028	2.26	.741	.100	.0367	.0018	.30
	.40	-.050	2.39	.955	.297	.0281	-.0039	.40

X-29A ROTARY BALANCE DATA

9BWCVp-10 BETA=-10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
40	-.40	-.091	2.71	1.095	-.125	-.0140	.0851	-.40
	-.30	-.074	2.62	1.069	-.155	-.0248	.0401	-.30
	-.20	-.066	2.56	.966	-.098	-.0269	.0319	-.20
	-.10	-.065	2.56	.933	-.110	-.0252	.0133	-.10
	-.05	-.060	2.52	.870	-.107	-.0234	.0014	-.05
	0.00	-.032	2.48	.817	-.119	-.0165	-.0084	0.00
	0.00	-.037	2.46	.804	-.107	-.0197	-.0045	0.00
	.05	-.048	2.45	.761	-.152	-.0132	-.0082	.05
	.10	-.041	2.41	.690	-.143	-.0069	-.0019	.10
	.20	-.031	2.29	.656	-.005	.0515	.0124	.20
	.30	-.048	2.41	.924	.198	.0642	.0127	.30
	.40	-.066	2.69	1.052	.274	.0339	-.0062	.40
45	-.40	-.102	2.93	1.133	-.006	-.0177	.0553	-.40
	-.30	-.089	2.84	1.091	-.042	-.0310	.0301	-.30
	-.20	-.077	2.75	.994	-.027	-.0190	.0199	-.20
	-.10	-.079	2.71	1.019	-.093	-.0266	-.0010	-.10
	-.05	-.071	2.66	.937	-.111	-.0186	-.0078	-.05
	0.00	-.042	2.58	.859	-.127	-.0151	-.0159	0.00
	0.00	-.058	2.57	.845	-.122	-.0157	-.0163	0.00
	.05	-.054	2.47	.796	-.155	-.0010	-.0337	.05
	.10	-.046	2.45	.714	-.180	.0057	-.0157	.10
	.20	-.042	2.35	.725	.027	.0623	.0372	.20
	.30	-.054	2.70	.941	.149	.0549	.0273	.30
	.40	-.068	2.95	1.103	.115	.0431	-.0321	.40
50	-.40	-.121	3.19	1.127	.070	-.0272	.0632	-.40
	-.30	-.101	3.07	1.116	.141	-.0240	.0276	-.30
	-.20	-.091	2.81	.993	.119	.0062	.0092	-.20
	-.10	-.094	2.82	1.060	-.030	-.0062	-.0271	-.10
	-.05	-.090	2.75	.989	-.061	.0006	-.0347	-.05
	0.00	-.068	2.68	.943	-.134	.0085	-.0559	0.00
	0.00	-.068	2.68	.946	-.138	.0075	-.0560	0.00
	.05	-.080	2.61	.842	-.176	.0064	-.0640	.05
	.10	-.069	2.56	.707	-.191	.0055	-.0239	.10
	.20	-.061	2.53	.757	.002	.0549	.0600	.20
	.30	-.076	2.98	1.009	-.057	.0453	.0417	.30
	.40	-.087	3.16	1.154	-.144	.0444	-.0179	.40
55	-.40	-.134	3.37	1.050	.230	-.0380	.0925	-.40
	-.30	-.118	3.12	1.023	.191	.0015	.0612	-.30
	-.20	-.105	2.90	.881	.119	.0222	.0667	-.20
	-.10	-.104	2.71	.877	-.048	.0251	-.0122	-.10
	-.05	-.102	2.66	.831	-.085	.0240	-.0275	-.05
	0.00	-.081	2.64	.793	-.152	.0214	-.0547	0.00
	0.00	-.099	2.64	.790	-.140	.0222	-.0554	0.00
	.05	-.098	2.63	.774	-.192	.0219	-.0697	.05
	.10	-.088	2.65	.690	-.175	.0068	-.0250	.10
	.20	-.086	2.87	.808	-.111	.0440	.0758	.20
	.30	-.084	3.04	.939	-.167	.0475	.0233	.30
	.40	-.079	2.98	.890	-.110	.0432	-.0648	.40

X-29A ROTARY BALANCE DATA

9BWCVp-10 BETA=-10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
60	-.40	-.121	3.18	.507	.274	.0187	.2259	-.40
	-.30	-.135	3.14	.761	.202	.0281	.1764	-.30
	-.20	-.141	2.92	.711	.103	.0279	.1313	-.20
	-.10	-.136	2.75	.576	.015	.0239	.0820	-.10
	-.05	-.137	2.71	.572	-.030	.0215	.0436	-.05
	0.00	-.089	2.65	.603	-.061	.0204	.0012	0.00
	0.00	-.088	2.65	.598	-.060	.0214	.0038	0.00
	.05	-.136	2.69	.592	-.137	.0207	-.0215	.05
	.10	-.138	2.70	.668	-.139	.0173	-.0313	.10
	.20	-.118	2.87	.725	-.121	.0393	.0519	.20
	.30	-.097	2.90	.748	-.085	.0382	.0064	.30
	.40	-.077	3.02	.721	-.029	.0452	-.0545	.40
65	-.40	-.139	3.25	.329	.168	.0118	.1809	-.40
	-.30	-.126	3.05	.414	.101	.0211	.1263	-.30
	-.20	-.119	2.90	.428	.053	.0265	.1138	-.20
	-.10	-.116	2.78	.439	-.021	.0237	.0706	-.10
	-.05	-.114	2.75	.454	-.057	.0215	.0342	-.05
	0.00	-.078	2.71	.487	-.092	.0223	.0057	0.00
	0.00	-.101	2.71	.483	-.082	.0214	.0053	0.00
	.05	-.113	2.71	.494	-.114	.0220	-.0081	.05
	.10	-.112	2.74	.565	-.120	.0223	-.0050	.10
	.20	-.095	2.79	.532	-.054	.0251	.0512	.20
	.30	-.087	2.88	.504	-.004	.0386	.0134	.30
	.40	-.090	3.10	.488	.041	.0499	-.0501	.40
70	-.40	-.139	3.31	.044	.089	.0111	.1427	-.40
	-.30	-.127	3.05	.181	.072	.0155	.1009	-.30
	-.20	-.119	2.89	.244	.008	.0241	.0747	-.20
	-.10	-.121	2.81	.312	-.048	.0225	.0416	-.10
	-.05	-.120	2.78	.338	-.073	.0214	.0223	-.05
	0.00	-.102	2.74	.377	-.099	.0213	.0017	0.00
	0.00	-.106	2.74	.377	-.083	.0221	.0004	0.00
	.05	-.116	2.76	.356	-.130	.0238	-.0056	.05
	.10	-.114	2.77	.409	-.108	.0273	.0154	.10
	.20	-.091	2.77	.270	.002	.0303	.0524	.20
	.30	-.100	2.92	.350	-.002	.0437	.0111	.30
	.40	-.116	3.17	.393	.043	.0601	-.0530	.40
75	-.40	-.149	3.44	-.072	.046	.0074	.1323	-.40
	-.30	-.131	3.12	.019	.044	.0109	.0766	-.30
	-.20	-.126	2.90	.113	.022	.0172	.0433	-.20
	-.10	-.127	2.82	.189	-.055	.0204	.0247	-.10
	-.05	-.125	2.77	.222	-.081	.0209	.0076	-.05
	0.00	-.115	2.75	.228	-.106	.0248	-.0007	0.00
	0.00	-.118	2.77	.242	-.102	.0244	-.0016	0.00
	.05	-.118	2.76	.196	-.156	.0285	.0097	.05
	.10	-.109	2.77	.181	-.098	.0321	.0263	.10
	.20	-.103	2.87	.169	-.001	.0358	.0483	.20
	.30	-.109	3.02	.271	.003	.0500	.0034	.30
	.40	-.125	3.26	.321	.010	.0680	-.0616	.40

X-29A ROTARY BALANCE DATA

9BWCVp-10 BETA=-10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
80	-.40	-.163	3.46	-.183	.039	-.0056	.1259	-.40
	-.30	-.144	3.16	-.086	.064	.0041	.0697	-.30
	-.20	-.133	2.94	.003	.023	.0122	.0288	-.20
	-.10	-.122	2.82	.085	-.011	.0167	.0010	-.10
	-.05	-.118	2.80	.122	-.062	.0180	.0013	-.05
	0.00	-.114	2.79	.102	-.097	.0272	.0156	0.00
	0.00	-.117	2.79	.101	-.091	.0275	.0186	0.00
	.05	-.109	2.80	.062	-.130	.0326	.0328	.05
	.10	-.105	2.81	.059	-.083	.0355	.0337	.10
	.20	-.109	2.88	.097	-.012	.0415	.0303	.20
	.30	-.116	3.05	.180	-.001	.0579	-.0073	.30
	.40	-.127	3.30	.236	-.012	.0772	-.0762	.40
85	-.40	-.167	3.49	-.184	.078	-.0126	.1270	-.40
	-.30	-.171	3.14	-.132	.086	-.0043	.0705	-.30
	-.20	-.154	2.91	-.072	.047	.0054	.0333	-.20
	-.10	-.141	2.80	.008	.010	.0129	.0024	-.10
	-.05	-.138	2.77	.056	-.048	.0175	.0100	-.05
	0.00	-.139	2.78	.006	-.081	.0343	.0342	0.00
	0.00	-.140	2.79	.007	-.092	.0306	.0319	0.00
	.05	-.128	2.80	-.032	-.095	.0346	.0372	.05
	.10	-.125	2.79	-.050	-.065	.0387	.0241	.10
	.20	-.133	2.88	.025	.014	.0472	.0286	.20
	.30	-.146	3.03	.147	.008	.0651	-.0117	.30
	.40	-.142	3.31	.226	.015	.0862	-.0791	.40
90	-.40	-.173	3.44	-.230	.081	-.0212	.1163	-.40
	-.30	-.171	3.12	-.185	.081	-.0112	.0697	-.30
	-.20	-.157	2.84	-.162	.039	-.0022	.0476	-.20
	-.10	-.144	2.73	-.108	.018	.0120	.0106	-.10
	-.05	-.143	2.73	-.021	-.034	.0181	.0110	-.05
	0.00	-.144	2.75	-.063	-.076	.0334	.0294	0.00
	0.00	-.146	2.77	-.098	-.072	.0363	.0340	0.00
	.05	-.127	2.74	-.146	-.086	.0372	.0250	.05
	.10	-.127	2.75	-.181	-.031	.0433	.0253	.10
	.20	-.135	2.84	-.058	.007	.0541	.0185	.20
	.30	-.144	2.99	.061	-.010	.0690	-.0230	.30
	.40	-.142	3.30	.135	.036	.0947	-.0820	.40

***** X-29A ROTARY BALANCE DATA *****

9BWCV+25f BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.40	.020	-.00	-.090	.004	.1551	-.0036	-.40
	-.30	.014	.03	-.093	.008	.1108	.0026	-.30
	-.20	.013	.08	-.098	.005	.0674	.0044	-.20
	-.10	.014	.11	-.096	.012	.0290	.0027	-.10
	-.05	.015	.12	-.098	.014	.0111	.0019	-.05
	0.00	.018	.09	-.104	.012	-.0052	.0003	0.00
	0.00	.017	.11	-.110	.019	-.0048	.0010	0.00
	.05	.017	.12	-.098	.019	-.0221	.0008	.05
	.10	.015	.11	-.098	.023	-.0409	.0003	.10
	.20	.012	.07	-.101	.027	-.0788	-.0000	.20
	.30	.009	.03	-.099	.036	-.1222	.0017	.30
	.40	.013	.01	-.099	.032	-.1633	.0059	.40
5	-.40	.009	.41	.038	-.059	.1242	.0137	-.40
	-.30	.002	.44	.028	-.033	.0957	.0142	-.30
	-.20	-.007	.46	.034	-.015	.0630	.0133	-.20
	-.10	-.010	.46	.041	.004	.0277	.0086	-.10
	-.05	-.011	.46	.042	.010	.0104	.0054	-.05
	0.00	-.005	.43	.034	.008	-.0054	.0007	0.00
	0.00	-.006	.43	.035	.009	-.0059	.0004	0.00
	.05	-.010	.46	.042	.024	-.0221	-.0017	.05
	.10	-.010	.46	.042	.026	-.0397	-.0049	.10
	.20	-.008	.45	.033	.039	-.0756	-.0093	.20
	.30	.000	.43	.031	.047	-.1087	-.0097	.30
	.40	.006	.42	.038	.062	-.1368	-.0102	.40
10	-.40	.004	.77	.164	-.128	.0932	.0390	-.40
	-.30	-.003	.77	.166	-.081	.0702	.0275	-.30
	-.20	-.019	.80	.184	-.048	.0505	.0186	-.20
	-.10	-.037	.84	.200	-.014	.0245	.0107	-.10
	-.05	-.042	.86	.206	.002	.0100	.0065	-.05
	0.00	-.036	.82	.196	.008	-.0055	.0011	0.00
	0.00	-.035	.82	.199	.010	-.0049	.0011	0.00
	.05	-.043	.85	.205	.029	-.0217	-.0022	.05
	.10	-.038	.84	.201	.042	-.0371	-.0063	.10
	.20	-.020	.78	.187	.065	-.0618	-.0142	.20
	.30	-.007	.75	.173	.082	-.0828	-.0236	.30
	.40	-.003	.76	.164	.101	-.1064	-.0361	.40
15	-.40	-.009	1.04	.265	-.207	.0496	.0677	-.40
	-.30	-.016	1.05	.275	-.139	.0415	.0445	-.30
	-.20	-.029	1.08	.300	-.088	.0274	.0245	-.20
	-.10	-.041	1.12	.314	-.035	.0097	.0110	-.10
	-.05	-.044	1.15	.325	-.010	.0015	.0064	-.05
	0.00	-.037	1.13	.314	.011	-.0042	.0013	0.00
	0.00	-.040	1.15	.312	.032	-.0055	.0015	0.00
	.05	-.043	1.15	.323	.034	-.0114	-.0014	.05
	.10	-.040	1.13	.317	.055	-.0205	-.0062	.10
	.20	-.031	1.08	.303	.087	-.0400	-.0194	.20
	.30	-.020	1.05	.284	.131	-.0569	-.0405	.30
	.40	-.014	1.02	.270	.167	-.0619	-.0626	.40

X-29A ROTARY BALANCE DATA

9BWCV+25f BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
20	-.40	-.024	1.27	.416	-.223	.0129	.0844	-.40
	-.30	-.031	1.30	.357	-.175	-.0034	.0717	-.30
	-.20	-.034	1.34	.373	-.120	-.0078	.0424	-.20
	-.10	-.036	1.39	.376	-.065	-.0065	.0194	-.10
	-.05	-.034	1.37	.355	-.025	-.0068	.0113	-.05
	0.00	-.019	1.34	.341	.002	-.0048	.0024	0.00
	0.00	-.019	1.34	.341	.005	-.0053	.0019	0.00
	.05	-.038	1.36	.362	.045	-.0040	-.0044	.05
	.10	-.040	1.38	.382	.080	-.0056	-.0119	.10
	.20	-.036	1.36	.381	.117	-.0071	-.0330	.20
	.30	-.036	1.30	.382	.166	-.0087	-.0604	.30
	.40	-.028	1.26	.433	.181	-.0247	-.0725	.40
25	-.40	-.032	1.60	.597	-.250	-.0117	.1011	-.40
	-.30	-.032	1.58	.493	-.157	-.0225	.0855	-.30
	-.20	-.036	1.58	.444	-.124	-.0265	.0695	-.20
	-.10	-.040	1.57	.425	-.055	-.0233	.0375	-.10
	-.05	-.041	1.58	.421	-.024	-.0197	.0251	-.05
	0.00	-.022	1.54	.400	-.000	-.0124	.0124	0.00
	0.00	-.020	1.54	.396	.004	-.0095	.0097	0.00
	.05	-.041	1.56	.415	.029	.0045	-.0109	.05
	.10	-.039	1.55	.423	.057	.0134	-.0254	.10
	.20	-.037	1.55	.452	.115	.0183	-.0539	.20
	.30	-.038	1.59	.507	.181	.0156	-.0746	.30
	.40	-.034	1.61	.656	.262	.0012	-.0737	.40
30	-.40	-.047	1.98	.869	-.327	-.0257	.1011	-.40
	-.30	-.037	1.88	.685	-.188	-.0297	.0815	-.30
	-.20	-.049	1.86	.600	-.121	-.0335	.0637	-.20
	-.10	-.049	1.84	.514	-.046	-.0228	.0330	-.10
	-.05	-.044	1.80	.471	-.021	-.0082	.0145	-.05
	0.00	-.029	1.77	.440	.020	-.0024	.0032	0.00
	0.00	-.030	1.77	.440	.025	-.0037	.0049	0.00
	.05	-.042	1.76	.468	.034	.0024	-.0017	.05
	.10	-.043	1.79	.510	.051	.0109	-.0146	.10
	.20	-.045	1.82	.614	.105	.0281	-.0434	.20
	.30	-.042	1.85	.711	.179	.0300	-.0673	.30
	.40	-.049	1.94	.860	.260	.0132	-.0744	.40
35	-.40	-.064	2.32	.941	-.280	-.0301	.0859	-.40
	-.30	-.061	2.19	.848	-.202	-.0443	.0736	-.30
	-.20	-.064	2.06	.790	-.100	-.0507	.0309	-.20
	-.10	-.055	1.99	.619	-.009	-.0369	.0210	-.10
	-.05	-.055	2.02	.563	-.013	-.0156	.0074	-.05
	0.00	-.025	1.98	.515	-.009	-.0044	.0066	0.00
	0.00	-.039	2.01	.517	-.001	-.0016	.0068	0.00
	.05	-.055	2.00	.559	.025	.0077	.0113	.05
	.10	-.053	1.97	.626	.018	.0256	-.0016	.10
	.20	-.058	2.04	.797	.070	.0377	-.0068	.20
	.30	-.059	2.11	.830	.159	.0284	-.0531	.30
	.40	-.061	2.24	.954	.169	.0121	-.0534	.40

X-29A ROTARY BALANCE DATA

9BWCV+25f

BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
40	-.40	-.079	2.55	.999	-.063	-.0249	.0497	-.40
	-.30	-.075	2.45	.949	-.156	-.0435	.0502	-.30
	-.20	-.079	2.28	.899	-.097	-.0521	.0066	-.20
	-.10	-.069	2.14	.668	-.012	-.0485	.0146	-.10
	-.05	-.062	2.09	.579	.002	-.0397	.0148	-.05
	0.00	-.041	2.14	.572	-.027	.0096	.0021	0.00
	0.00	-.043	2.17	.582	-.031	.0035	.0038	0.00
	.05	-.061	2.10	.596	-.028	.0303	.0161	.05
	.10	-.065	2.12	.699	-.008	.0319	.0181	.10
	.20	-.069	2.25	.893	.077	.0372	.0088	.20
	.30	-.068	2.37	.937	.083	.0216	-.0195	.30
	.40	-.077	2.53	1.056	.042	.0140	-.0245	.40
45	-.40	-.095	2.85	1.106	.016	-.0412	.0708	-.40
	-.30	-.084	2.75	1.063	-.031	-.0407	.0059	-.30
	-.20	-.083	2.56	.961	-.109	-.0525	-.0023	-.20
	-.10	-.078	2.39	.748	-.099	-.0392	-.0238	-.10
	-.05	-.068	2.29	.616	-.042	-.0297	-.0040	-.05
	0.00	-.042	2.29	.599	-.012	.0130	.0138	0.00
	0.00	-.058	2.26	.560	-.009	.0153	.0149	0.00
	.05	-.068	2.26	.632	.030	.0257	.0322	.05
	.10	-.072	2.37	.760	.026	.0333	.0378	.10
	.20	-.076	2.55	.949	.015	.0372	.0274	.20
	.30	-.079	2.72	1.067	-.046	.0332	.0088	.30
	.40	-.092	2.86	1.135	-.079	.0397	-.0509	.40
50	-.40	-.118	3.07	1.149	.257	-.0526	.1006	-.40
	-.30	-.105	2.96	1.148	.120	-.0425	.0074	-.30
	-.20	-.104	2.76	1.046	.028	-.0222	-.0506	-.20
	-.10	-.097	2.54	.775	-.086	-.0364	-.0542	-.10
	-.05	-.091	2.43	.629	-.095	-.0195	-.0398	-.05
	0.00	-.074	2.35	.578	-.014	.0135	.0234	0.00
	0.00	-.073	2.38	.571	-.016	.0149	.0241	0.00
	.05	-.088	2.41	.628	.008	.0190	.0646	.05
	.10	-.096	2.58	.817	-.028	.0387	.0677	.10
	.20	-.099	2.72	1.028	-.075	.0113	.0769	.20
	.30	-.098	2.94	1.148	-.150	.0354	.0145	.30
	.40	-.111	3.03	1.163	-.208	.0486	-.0610	.40
55	-.40	-.134	3.11	1.082	.291	-.0262	.1501	-.40
	-.30	-.116	2.92	1.071	.148	-.0216	.0315	-.30
	-.20	-.109	2.69	.952	.002	-.0027	-.0311	-.20
	-.10	-.109	2.60	.816	-.084	.0062	-.0928	-.10
	-.05	-.098	2.51	.635	-.096	-.0101	-.0635	-.05
	0.00	-.080	2.47	.595	-.014	.0049	.0306	0.00
	0.00	-.103	2.46	.609	-.020	.0060	.0221	0.00
	.05	-.104	2.51	.656	.010	.0064	.0827	.05
	.10	-.106	2.55	.713	.014	-.0073	.1075	.10
	.20	-.108	2.66	.964	-.075	.0009	.0523	.20
	.30	-.112	2.87	1.058	-.180	.0140	-.0092	.30
	.40	-.131	3.09	1.087	-.269	.0244	-.1063	.40

X-29A ROTARY BALANCE DATA

9BWCV+25f

BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
60	-.40	-.130	3.13	.792	.226	-.0215	.1760	-.40
	-.30	-.146	3.02	.901	.191	-.0049	.1096	-.30
	-.20	-.139	2.72	.660	.053	.0012	.0391	-.20
	-.10	-.152	2.60	.590	-.054	.0036	-.0394	-.10
	-.05	-.158	2.57	.610	-.087	.0013	-.0604	-.05
	0.00	-.101	2.55	.610	-.070	.0003	.0146	0.00
	0.00	-.100	2.52	.603	-.049	.0033	.0269	0.00
	.05	-.154	2.56	.578	.002	-.0040	.0755	.05
	.10	-.148	2.58	.586	-.035	-.0056	.0590	.10
	.20	-.135	2.68	.684	-.115	-.0034	-.0092	.20
	.30	-.140	2.97	.917	-.206	.0062	-.0688	.30
	.40	-.118	3.05	.741	-.271	.0218	-.1659	.40
65	-.40	-.115	3.05	.424	.103	-.0200	.1393	-.40
	-.30	-.123	2.87	.472	.075	-.0067	.0862	-.30
	-.20	-.134	2.75	.491	.008	.0008	.0261	-.20
	-.10	-.142	2.59	.488	-.071	.0004	-.0246	-.10
	-.05	-.147	2.58	.504	-.092	-.0002	-.0332	-.05
	0.00	-.117	2.56	.537	-.038	.0004	.0316	0.00
	0.00	-.116	2.59	.559	-.063	.0003	.0216	0.00
	.05	-.144	2.57	.500	-.035	-.0020	.0449	.05
	.10	-.140	2.58	.480	-.066	-.0022	.0425	.10
	.20	-.130	2.69	.494	-.097	-.0005	.0010	.20
	.30	-.113	2.80	.477	-.136	.0112	-.0274	.30
	.40	-.108	3.03	.433	-.121	.0270	-.0991	.40
70	-.40	-.115	3.18	.262	-.024	-.0260	.1167	-.40
	-.30	-.120	2.88	.255	.010	-.0144	.0501	-.30
	-.20	-.137	2.73	.299	-.038	-.0032	-.0008	-.20
	-.10	-.147	2.64	.332	-.091	-.0009	-.0339	-.10
	-.05	-.148	2.59	.357	-.081	-.0003	-.0348	-.05
	0.00	-.141	2.63	.495	-.076	-.0003	.0083	0.00
	0.00	-.146	2.70	.461	-.054	.0016	.0113	0.00
	.05	-.146	2.57	.347	-.029	.0003	.0561	.05
	.10	-.146	2.63	.331	-.030	.0008	.0541	.10
	.20	-.125	2.66	.269	-.087	.0087	.0211	.20
	.30	-.113	2.84	.277	-.094	.0198	-.0230	.30
	.40	-.108	3.11	.288	-.052	.0370	-.0887	.40
75	-.40	-.139	3.26	.117	-.002	-.0388	.1170	-.40
	-.30	-.128	3.01	.143	.005	-.0227	.0424	-.30
	-.20	-.123	2.74	.108	-.016	-.0147	-.0030	-.20
	-.10	-.126	2.65	.157	-.055	-.0054	-.0571	-.10
	-.05	-.127	2.64	.192	-.083	-.0019	-.0453	-.05
	0.00	-.113	2.64	.285	-.074	.0021	.0145	0.00
	0.00	-.121	2.63	.285	-.062	-.0002	.0168	0.00
	.05	-.124	2.62	.175	-.037	.0039	.0669	.05
	.10	-.122	2.64	.142	-.065	.0069	.0725	.10
	.20	-.115	2.73	.118	-.097	.0166	.0142	.20
	.30	-.121	2.92	.172	-.097	.0287	-.0278	.30
	.40	-.135	3.15	.171	-.063	.0504	-.0973	.40

X-29A ROTARY BALANCE DATA

9BWCV+25f BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
80	-.40	-.150	3.18	-.013	.002	-.0537	.1243	-.40
	-.30	-.125	2.93	.041	.026	-.0329	.0492	-.30
	-.20	-.123	2.73	.012	-.001	-.0227	.0082	-.20
	-.10	-.128	2.63	.031	-.013	-.0089	-.0523	-.10
	-.05	-.131	2.63	.090	-.024	-.0059	-.0414	-.05
	0.00	-.115	2.63	.132	-.057	.0031	.0194	0.00
	0.00	-.117	2.63	.164	-.053	.0024	.0147	0.00
	.05	-.127	2.61	.077	-.068	.0065	.0555	.05
	.10	-.126	2.62	.030	-.078	.0108	.0601	.10
	.20	-.122	2.71	.029	-.089	.0237	-.0014	.20
	.30	-.122	2.90	.076	-.102	.0373	-.0377	.30
	.40	-.141	3.11	.047	-.063	.0591	-.1109	.40
85	-.40	-.153	3.13	-.035	-.032	-.0623	.1272	-.40
	-.30	-.150	2.92	-.004	.037	-.0402	.0536	-.30
	-.20	-.135	2.73	-.053	.024	-.0278	.0176	-.20
	-.10	-.129	2.62	-.072	.011	-.0132	-.0334	-.10
	-.05	-.131	2.62	-.002	.006	-.0086	-.0292	-.05
	0.00	-.111	2.61	.033	-.031	.0031	.0159	0.00
	0.00	-.118	2.59	.021	-.033	.0059	.0185	0.00
	.05	-.130	2.63	-.019	-.071	.0086	.0472	.05
	.10	-.127	2.63	-.081	-.066	.0153	.0434	.10
	.20	-.129	2.71	-.046	-.072	.0295	-.0096	.20
	.30	-.143	2.85	.001	-.094	.0419	-.0495	.30
	.40	-.149	3.12	-.017	-.034	.0632	-.1171	.40
90	-.40	-.093	3.12	-.097	-.002	-.0610	.1173	-.40
	-.30	-.150	2.86	-.094	.013	-.0417	.0571	-.30
	-.20	-.138	2.69	-.145	.011	-.0315	.0271	-.20
	-.10	-.129	2.60	-.176	-.017	-.0157	-.0197	-.10
	-.05	-.133	2.59	-.110	-.000	-.0082	-.0271	-.05
	0.00	-.139	2.56	-.092	-.018	.0017	.0112	0.00
	0.00	-.115	2.57	-.101	-.055	.0070	.0227	0.00
	.05	-.131	2.58	-.139	-.074	.0117	.0405	.05
	.10	-.128	2.59	-.187	-.052	.0192	.0251	.10
	.20	-.133	2.69	-.125	-.053	.0337	-.0185	.20
	.30	-.148	2.84	-.080	-.081	.0478	-.0480	.30
	.40	-.088	3.09	-.071	.008	.0708	-.1077	.40

***** X-29A ROTARY BALANCE DATA *****

9BWCVp+10+25f BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.50	.107	.12	.009	-.087	.1637	.0056	-.50
	-.40	.086	.08	-.025	-.154	.1413	.0140	-.40
	-.30	.074	.10	-.047	-.162	.1085	.0204	-.30
	-.20	.071	.12	-.060	-.162	.0713	.0198	-.20
	-.10	.072	.13	-.065	-.163	.0365	.0201	-.10
	0.00	.069	.12	-.085	-.198	.0034	.0231	0.00
	0.00	.070	.11	-.085	-.201	.0036	.0231	0.00
	.10	.072	.14	-.084	-.173	-.0315	.0241	.10
	.20	.068	.14	-.098	-.175	-.0697	.0255	.20
	.30	.069	.14	-.113	-.168	-.1116	.0253	.30
	.40	.074	.21	-.124	-.150	-.1499	.0250	.40
	.50	.086	.32	-.120	-.107	-.1818	.0238	.50
5	-.50	.087	.46	.142	-.170	.1389	.0312	-.50
	-.40	.077	.42	.091	-.186	.1159	.0336	-.40
	-.30	.066	.42	.073	-.190	.0894	.0337	-.30
	-.20	.054	.46	.075	-.182	.0666	.0325	-.20
	-.10	.047	.47	.076	-.178	.0340	.0291	-.10
	0.00	.044	.47	.058	-.188	.0022	.0254	0.00
	0.00	.043	.47	.058	-.185	.0014	.0250	0.00
	.10	.045	.48	.059	-.168	-.0336	.0187	.10
	.20	.048	.49	.034	-.148	-.0708	.0145	.20
	.30	.055	.51	.015	-.121	-.1086	.0087	.30
	.40	.064	.53	.013	-.080	-.1443	.0028	.40
	.50	.070	.62	.027	-.022	-.1759	-.0094	.50
10	-.50	.080	.80	.249	-.199	.1002	.0534	-.50
	-.40	.075	.73	.211	-.226	.0784	.0496	-.40
	-.30	.060	.75	.219	-.217	.0664	.0493	-.30
	-.20	.044	.77	.235	-.200	.0424	.0414	-.20
	-.10	.025	.83	.232	-.172	.0221	.0328	-.10
	0.00	.014	.86	.204	-.173	-.0053	.0262	0.00
	0.00	.014	.86	.204	-.170	-.0055	.0257	0.00
	.10	.016	.88	.200	-.127	-.0385	.0133	.10
	.20	.029	.87	.173	-.102	-.0708	.0039	.20
	.30	.046	.87	.158	-.061	-.0998	-.0091	.30
	.40	.053	.90	.147	-.013	-.1246	-.0284	.40
	.50	.052	1.00	.150	.085	-.1472	-.0569	.50
15	-.50	.063	1.09	.418	-.235	.0788	.0722	-.50
	-.40	.063	1.02	.325	-.254	.0513	.0707	-.40
	-.30	.051	1.02	.295	-.244	.0290	.0665	-.30
	-.20	.032	1.07	.313	-.221	.0148	.0546	-.20
	-.10	.020	1.11	.322	-.187	-.0057	.0377	-.10
	0.00	.016	1.14	.301	-.160	-.0232	.0226	0.00
	0.00	.016	1.13	.301	-.161	-.0230	.0232	0.00
	.10	.007	1.19	.324	-.100	-.0410	.0106	.10
	.20	.016	1.16	.312	-.057	-.0626	-.0030	.20
	.30	.032	1.16	.299	-.005	-.0823	-.0268	.30
	.40	.038	1.20	.293	.063	-.0983	-.0575	.40
	.50	.038	1.25	.306	.171	-.0996	-.0905	.50

X-29A ROTARY BALANCE DATA

9BWCVp+10+25f BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
20	-.50	.036	1.45	.603	-.244	.0527	.0942	-.50
	-.40	.043	1.38	.470	-.263	.0263	.0859	-.40
	-.30	.036	1.39	.402	-.248	.0012	.0821	-.30
	-.20	.024	1.40	.395	-.221	-.0197	.0702	-.20
	-.10	.018	1.44	.395	-.174	-.0322	.0481	-.10
	0.00	.023	1.44	.389	-.136	-.0392	.0240	0.00
	0.00	.023	1.42	.380	-.138	-.0381	.0245	0.00
	.10	.017	1.45	.413	-.063	-.0377	-.0001	.10
	.20	.018	1.45	.414	.004	-.0413	-.0204	.20
	.30	.023	1.45	.434	.062	-.0384	-.0424	.30
	.40	.028	1.43	.444	.125	-.0414	-.0649	.40
	.50	.020	1.51	.470	.228	-.0521	-.0991	.50
25	-.50	.020	1.75	.779	-.221	.0314	.0760	-.50
	-.40	.037	1.63	.609	-.180	.0028	.0728	-.40
	-.30	.035	1.60	.497	-.118	-.0163	.0592	-.30
	-.20	.019	1.66	.471	-.101	-.0256	.0496	-.20
	-.10	.013	1.68	.472	-.067	-.0271	.0302	-.10
	0.00	.018	1.65	.450	-.047	-.0213	.0080	0.00
	0.00	.015	1.65	.453	-.044	-.0214	.0087	0.00
	.10	.008	1.64	.510	-.006	-.0085	-.0158	.10
	.20	.018	1.63	.542	.047	-.0021	-.0305	.20
	.30	.019	1.63	.559	.106	-.0037	-.0474	.30
	.40	.018	1.69	.592	.207	-.0117	-.0696	.40
	.50	-.002	1.79	.665	.296	-.0261	-.1054	.50
30	-.50	-.010	2.12	1.003	-.246	.0109	.0539	-.50
	-.40	.024	1.96	.768	-.138	-.0121	.0484	-.40
	-.30	.037	1.82	.592	-.036	-.0164	.0498	-.30
	-.20	.029	1.79	.532	.017	-.0149	.0378	-.20
	-.10	.008	1.89	.555	.009	-.0104	.0180	-.10
	0.00	.006	1.87	.563	-.021	-.0082	-.0033	0.00
	0.00	.006	1.87	.558	-.010	-.0092	-.0039	0.00
	.10	-.003	1.92	.654	.052	.0082	-.0189	.10
	.20	.000	1.92	.728	.095	.0099	-.0255	.20
	.30	.004	1.91	.772	.121	.0107	-.0512	.30
	.40	-.007	1.98	.814	.189	.0063	-.0860	.40
	.50	-.037	2.15	.924	.352	.0015	-.1267	.50
35	-.50	-.056	2.46	1.271	-.274	-.0085	.0425	-.50
	-.40	-.012	2.26	.983	-.179	-.0354	.0247	-.40
	-.30	.015	2.16	.717	-.041	-.0407	.0344	-.30
	-.20	.019	2.04	.600	.057	-.0168	.0372	-.20
	-.10	-.001	2.15	.654	.074	.0011	.0196	-.10
	0.00	.002	2.13	.675	.012	.0010	-.0051	0.00
	0.00	.003	2.13	.677	.011	.0022	-.0053	0.00
	.10	-.010	2.18	.782	.069	.0102	-.0019	.10
	.20	-.009	2.22	.884	.107	.0087	-.0137	.20
	.30	-.012	2.18	.912	.137	.0138	-.0426	.30
	.40	-.021	2.29	.985	.214	.0157	-.0902	.40
	.50	-.062	2.47	1.032	.277	.0180	-.1186	.50

X-29A ROTARY BALANCE DATA

9BWCVp+10+25f

BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
40	-.50	-.076	2.87	1.311	-.122	-.0305	.0822	-.50
	-.40	-.065	2.38	1.175	-.214	-.0617	.0368	-.40
	-.30	-.056	1.91	.908	-.090	-.0654	.0025	-.30
	-.20	-.057	1.89	.678	.090	-.0313	.0234	-.20
	-.10	-.074	1.80	.734	.100	.0022	.0262	-.10
	0.00	-.056	2.13	.791	.029	.0024	.0108	0.00
	0.00	-.059	2.13	.787	.033	.0027	.0139	0.00
	.10	-.072	2.09	.909	.065	.0064	.0099	.10
	.20	-.071	2.08	.984	.079	.0078	-.0074	.20
	.30	-.074	2.07	1.041	.110	.0102	-.0283	.30
	.40	-.092	2.11	1.051	.065	.0133	-.0555	.40
	.50	-.136	2.22	1.008	.064	.0216	-.1157	.50
45	-.40	-.135	2.35	1.177	-.140	-.0463	.0440	-.40
	-.30	-.145	2.06	1.032	-.226	-.0859	.0044	-.30
	-.20	-.134	1.84	.752	-.036	-.0588	-.0108	-.20
	-.10	-.141	1.87	.707	.130	-.0126	.0414	-.10
	-.05	-.149	1.95	.786	.089	.0014	.0370	-.05
	0.00	-.132	2.04	.865	.046	.0037	.0383	0.00
	0.00	-.134	2.04	.861	.059	.0037	.0378	0.00
	.05	-.146	2.11	.909	.016	.0098	.0275	.05
	.10	-.148	2.15	.974	.006	.0147	.0179	.10
	.20	-.140	2.18	.996	-.062	.0125	.0019	.20
	.30	-.141	2.28	1.102	-.068	.0177	-.0066	.30
	.40	-.138	2.38	1.142	-.052	.0211	-.0402	.40
50	-.40	-.097	2.89	1.154	.106	-.0485	.0488	-.40
	-.30	-.102	2.75	1.008	-.012	-.0496	-.0152	-.30
	-.20	-.100	2.29	.748	-.058	-.0481	-.0402	-.20
	-.10	-.113	2.33	.678	.115	-.0047	.0487	-.10
	-.05	-.127	2.41	.811	.076	-.0072	.0740	-.05
	0.00	-.128	2.32	.843	.113	-.0250	.0884	0.00
	0.00	-.143	2.34	.829	.102	-.0229	.0882	0.00
	.05	-.157	2.38	.933	.064	-.0324	.0827	.05
	.10	-.153	2.47	1.046	-.007	-.0241	.0701	.10
	.20	-.138	2.56	1.028	-.108	-.0131	.0280	.20
	.30	-.128	2.82	1.176	-.198	.0245	-.0112	.30
	.40	-.124	2.97	1.169	-.143	.0331	-.0450	.40
55	-.40	-.096	2.76	.915	.106	-.0459	.1082	-.40
	-.30	-.114	2.83	.950	.126	-.0494	.0005	-.30
	-.20	-.119	2.49	.739	-.050	-.0456	-.0594	-.20
	-.10	-.133	2.41	.666	.087	-.0096	.0524	-.10
	-.05	-.137	2.39	.662	.093	-.0192	.0703	-.05
	0.00	-.130	2.42	.782	.058	-.0189	.0768	0.00
	0.00	-.132	2.43	.787	.059	-.0188	.0747	0.00
	.05	-.150	2.44	.844	.029	-.0216	.0599	.05
	.10	-.148	2.46	.879	-.027	-.0226	.0380	.10
	.20	-.137	2.62	.954	-.130	-.0169	-.0164	.20
	.30	-.135	2.88	1.118	-.243	.0060	-.0278	.30
	.40	-.132	3.06	1.069	-.274	.0224	-.0778	.40

X-29A ROTARY BALANCE DATA

9BWCVp+10+25f BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
60	-.40	-.105	2.83	.751	.033	-.0457	.1206	-.40
	-.30	-.122	2.72	.778	.032	-.0452	.0227	-.30
	-.20	-.142	2.63	.706	-.002	-.0384	-.0422	-.20
	-.10	-.159	2.46	.612	.058	-.0200	.0439	-.10
	-.05	-.160	2.46	.564	.043	-.0202	.0339	-.05
	0.00	-.108	2.40	.570	-.018	-.0177	.0075	0.00
	0.00	-.110	2.39	.565	-.022	-.0181	.0067	0.00
	.05	-.160	2.45	.580	-.053	-.0200	-.0157	.05
	.10	-.161	2.50	.609	-.077	-.0223	-.0495	.10
	.20	-.157	2.69	.766	-.155	-.0224	-.0852	.20
	.30	-.143	2.81	.728	-.298	-.0197	-.1635	.30
	.40	-.128	2.93	.605	-.330	-.0062	-.1989	.40
65	-.40	-.102	2.86	.489	-.112	-.0495	.0771	-.40
	-.30	-.120	2.69	.569	-.046	-.0360	.0075	-.30
	-.20	-.135	2.59	.566	-.052	-.0274	-.0287	-.20
	-.10	-.150	2.53	.549	.013	-.0212	.0157	-.10
	-.05	-.147	2.48	.476	.029	-.0212	.0220	-.05
	0.00	-.125	2.45	.466	-.033	-.0177	.0093	0.00
	0.00	-.125	2.46	.454	-.039	-.0202	.0068	0.00
	.05	-.147	2.50	.453	-.032	-.0203	-.0142	.05
	.10	-.147	2.52	.464	-.072	-.0207	-.0408	.10
	.20	-.141	2.64	.471	-.143	-.0209	-.0932	.20
	.30	-.132	2.79	.457	-.180	-.0136	-.1131	.30
	.40	-.138	2.98	.392	-.264	-.0002	-.1622	.40
70	-.40	-.122	2.96	.396	-.125	-.0585	.0758	-.40
	-.30	-.120	2.74	.329	-.092	-.0417	.0050	-.30
	-.20	-.131	2.57	.331	-.101	-.0265	-.0426	-.20
	-.10	-.155	2.57	.442	-.003	-.0232	.0039	-.10
	-.05	-.153	2.53	.347	.035	-.0222	.0247	-.05
	0.00	-.138	2.53	.369	-.012	-.0190	.0186	0.00
	0.00	-.138	2.52	.361	-.017	-.0193	.0142	0.00
	.05	-.152	2.53	.347	-.027	-.0195	-.0007	.05
	.10	-.152	2.57	.334	-.047	-.0193	-.0191	.10
	.20	-.140	2.64	.285	-.106	-.0186	-.0438	.20
	.30	-.132	2.82	.210	-.170	-.0077	-.0765	.30
	.40	-.128	3.06	.109	-.147	.0017	-.1191	.40
75	-.40	-.144	3.06	.308	-.104	-.0652	.0830	-.40
	-.30	-.128	2.82	.251	-.078	-.0466	.0134	-.30
	-.20	-.126	2.64	.164	-.099	-.0343	-.0333	-.20
	-.10	-.129	2.57	.198	-.008	-.0300	-.0259	-.10
	-.05	-.134	2.55	.202	.033	-.0248	.0101	-.05
	0.00	-.125	2.51	.251	-.026	-.0214	.0296	0.00
	0.00	-.127	2.51	.255	-.032	-.0200	.0290	0.00
	.05	-.137	2.52	.230	-.034	-.0178	.0144	.05
	.10	-.138	2.57	.199	-.075	-.0170	-.0026	.10
	.20	-.134	2.63	.114	-.153	-.0094	-.0181	.20
	.30	-.133	2.86	.046	-.166	-.0011	-.0548	.30
	.40	-.149	3.13	-.012	-.145	.0099	-.1177	.40

X-29A ROTARY BALANCE DATA

9BWCVp+10+25f BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
80	-.40	-.146	3.08	.216	-.071	-.0729	.0966	-.40
	-.30	-.136	2.82	.173	-.080	-.0535	.0227	-.30
	-.20	-.135	2.64	.078	-.096	-.0427	-.0081	-.20
	-.10	-.133	2.60	.065	-.032	-.0333	-.0313	-.10
	-.05	-.136	2.57	.079	.005	-.0300	-.0141	-.05
	0.00	-.126	2.54	.107	-.050	-.0211	.0047	0.00
	0.00	-.128	2.54	.134	-.055	-.0214	.0105	0.00
	.05	-.140	2.55	.126	-.069	-.0156	.0145	.05
	.10	-.142	2.56	.084	-.130	-.0127	.0170	.10
	.20	-.144	2.69	.016	-.164	-.0058	-.0115	.20
	.30	-.153	2.89	-.022	-.191	.0083	-.0533	.30
	.40	-.154	3.20	-.107	-.133	.0224	-.1145	.40
85	-.40	-.134	3.10	.156	-.079	-.0805	.0965	-.40
	-.30	-.147	2.83	.112	-.098	-.0596	.0297	-.30
	-.20	-.139	2.67	.005	-.104	-.0479	-.0070	-.20
	-.10	-.129	2.57	-.055	-.058	-.0368	-.0179	-.10
	-.05	-.134	2.60	-.014	-.022	-.0331	-.0256	-.05
	0.00	-.129	2.58	.034	-.065	-.0244	-.0037	0.00
	0.00	-.120	2.52	.038	-.068	-.0248	-.0024	0.00
	.05	-.139	2.55	.052	-.092	-.0162	.0069	.05
	.10	-.139	2.54	-.013	-.154	-.0101	.0154	.10
	.20	-.148	2.69	-.080	-.181	.0030	-.0230	.20
	.30	-.160	2.94	-.109	-.202	.0156	-.0556	.30
	.40	-.135	3.21	-.126	-.157	.0307	-.1124	.40
90	-.40	-.110	3.03	.088	-.118	-.0856	.0950	-.40
	-.30	-.147	2.76	.031	-.097	-.0631	.0359	-.30
	-.20	-.157	2.63	-.058	-.133	-.0513	-.0066	-.20
	-.10	-.153	2.53	-.170	-.075	-.0404	-.0130	-.10
	-.05	-.155	2.52	-.140	-.046	-.0353	-.0146	-.05
	0.00	-.148	2.51	-.034	-.070	-.0245	-.0055	0.00
	0.00	-.146	2.51	-.047	-.081	-.0258	-.0002	0.00
	.05	-.166	2.50	-.016	-.102	-.0145	.0090	.05
	.10	-.165	2.51	-.128	-.159	-.0064	.0068	.10
	.20	-.168	2.61	-.167	-.178	.0115	-.0347	.20
	.30	-.164	2.89	-.162	-.215	.0198	-.0604	.30
	.40	-.113	3.14	-.170	-.183	.0381	-.1071	.40

***** X-29A ROTARY BALANCE DATA *****

9BWCV+25f-60c BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.40	.256	.24	-.282	.025	.1271	-.0222	-.40
	-.30	.237	.25	-.269	.017	.0942	-.0161	-.30
	-.20	.229	.30	-.267	.015	.0590	-.0123	-.20
	-.10	.233	.35	-.295	.016	.0262	-.0080	-.10
	-.05	.237	.35	-.308	.016	.0099	-.0051	-.05
	0.00	.238	.34	-.320	.008	-.0050	-.0002	0.00
	0.00	.238	.35	-.320	.009	-.0051	-.0018	0.00
	.05	.243	.36	-.312	.025	-.0215	.0020	.05
	.10	.241	.35	-.305	.034	-.0380	.0047	.10
	.20	.235	.30	-.279	.034	-.0700	.0108	.20
	.30	.235	.27	-.276	.038	-.1032	.0133	.30
	.40	.252	.26	-.290	.046	-.1355	.0191	.40
5	-.40	.264	.48	-.298	-.013	.1141	-.0049	-.40
	-.30	.251	.54	-.304	-.010	.0910	-.0016	-.30
	-.20	.248	.58	-.294	-.004	.0601	-.0017	-.20
	-.10	.245	.59	-.269	.009	.0248	-.0005	-.10
	-.05	.243	.58	-.258	.012	.0089	.0006	-.05
	0.00	.248	.56	-.266	.004	-.0058	-.0008	0.00
	0.00	.249	.56	-.267	.003	-.0069	-.0004	0.00
	.05	.249	.58	-.255	.026	-.0225	-.0015	.05
	.10	.245	.59	-.264	.032	-.0386	-.0007	.10
	.20	.242	.58	-.285	.046	-.0724	.0011	.20
	.30	.247	.57	-.295	.055	-.1032	.0020	.30
	.40	.255	.50	-.286	.054	-.1238	.0036	.40
10	-.40	.287	.68	-.306	-.031	.0754	.0164	-.40
	-.30	.272	.73	-.278	-.014	.0630	.0144	-.30
	-.20	.259	.80	-.264	-.007	.0462	.0120	-.20
	-.10	.242	.86	-.252	.004	.0200	.0096	-.10
	-.05	.239	.87	-.246	.006	.0068	.0062	-.05
	0.00	.244	.83	-.260	.003	-.0071	.0011	0.00
	0.00	.240	.85	-.259	.005	-.0071	.0020	0.00
	.05	.238	.87	-.242	.024	-.0202	-.0049	.05
	.10	.240	.86	-.245	.025	-.0345	-.0098	.10
	.20	.256	.81	-.258	.038	-.0591	-.0123	.20
	.30	.270	.73	-.272	.047	-.0737	-.0129	.30
	.40	.278	.67	-.287	.050	-.0851	-.0166	.40
15	-.40	.276	.89	-.234	-.088	.0393	.0575	-.40
	-.30	.281	.90	-.261	-.043	.0299	.0352	-.30
	-.20	.282	.96	-.266	-.018	.0189	.0202	-.20
	-.10	.269	1.02	-.253	.019	.0084	.0114	-.10
	-.05	.254	1.07	-.242	.020	.0015	.0068	-.05
	0.00	.252	1.07	-.256	.011	-.0065	.0017	0.00
	0.00	.252	1.07	-.258	.010	-.0062	-.0000	0.00
	.05	.254	1.07	-.232	.011	-.0137	-.0042	.05
	.10	.258	1.03	-.225	.017	-.0206	-.0095	.10
	.20	.272	.95	-.229	.026	-.0313	-.0218	.20
	.30	.291	.89	-.257	.046	-.0414	-.0350	.30
	.40	.278	.87	-.234	.073	-.0516	-.0525	.40

X-29A ROTARY BALANCE DATA

9BWCV+25f-60c

BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
20	-.40	.255	1.14	-.137	-.072	.0171	.0803	-.40
	-.30	.257	1.10	-.170	-.047	.0080	.0595	-.30
	-.20	.256	1.13	-.193	-.018	.0033	.0358	-.20
	-.10	.247	1.18	-.213	-.007	-.0047	.0134	-.10
	-.05	.248	1.21	-.221	-.004	-.0058	.0046	-.05
	0.00	.259	1.19	-.258	-.020	-.0045	-.0001	0.00
	0.00	.258	1.20	-.261	-.017	-.0039	.0005	0.00
	.05	.258	1.21	-.256	-.001	-.0039	-.0017	.05
	.10	.260	1.18	-.241	.007	-.0067	-.0077	.10
	.20	.263	1.13	-.205	.030	-.0125	-.0295	.20
	.30	.262	1.10	-.179	.044	-.0216	-.0517	.30
	.40	.258	1.13	-.136	.065	-.0295	-.0702	.40
25	-.40	.220	1.40	-.027	.010	.0054	.0689	-.40
	-.30	.209	1.39	-.088	.004	-.0044	.0613	-.30
	-.20	.209	1.39	-.124	.019	-.0123	.0378	-.20
	-.10	.197	1.40	-.143	.010	-.0145	.0186	-.10
	-.05	.195	1.42	-.154	.007	-.0073	.0113	-.05
	0.00	.203	1.39	-.176	-.010	-.0006	.0044	0.00
	0.00	.204	1.39	-.179	-.007	-.0026	.0056	0.00
	.05	.195	1.40	-.148	-.002	.0045	-.0013	.05
	.10	.197	1.38	-.131	-.003	.0073	-.0090	.10
	.20	.207	1.36	-.118	-.026	.0053	-.0243	.20
	.30	.220	1.38	-.083	-.009	-.0050	-.0363	.30
	.40	.225	1.40	.012	.060	-.0167	-.0539	.40
30	-.40	.161	1.72	.233	-.069	.0058	.0458	-.40
	-.30	.154	1.62	.061	.047	-.0066	.0375	-.30
	-.20	.144	1.61	.027	.009	-.0171	.0270	-.20
	-.10	.132	1.60	-.028	.004	-.0193	.0163	-.10
	-.05	.128	1.60	-.052	.014	-.0113	.0102	-.05
	0.00	.134	1.60	-.080	-.002	.0026	.0054	0.00
	0.00	.136	1.59	-.076	-.002	.0009	.0055	0.00
	.05	.130	1.60	-.047	-.001	.0109	.0031	.05
	.10	.135	1.58	-.010	.012	.0109	-.0003	.10
	.20	.148	1.59	.050	.011	.0100	-.0124	.20
	.30	.163	1.62	.123	.016	-.0017	-.0182	.30
	.40	.160	1.74	.202	.050	-.0124	-.0261	.40
35	-.40	.096	2.07	.389	-.075	.0017	.0301	-.40
	-.30	.092	1.90	.252	-.013	-.0046	.0108	-.30
	-.20	.078	1.84	.193	-.037	-.0119	.0010	-.20
	-.10	.064	1.81	.079	-.023	-.0161	.0022	-.10
	-.05	.061	1.81	.034	-.016	-.0147	.0061	-.05
	0.00	.079	1.79	-.001	-.008	.0008	.0057	0.00
	0.00	.075	1.81	-.001	-.018	.0010	.0071	0.00
	.05	.062	1.80	.049	.021	.0087	.0171	.05
	.10	.066	1.79	.095	.020	.0065	.0191	.10
	.20	.079	1.83	.205	.032	.0033	.0180	.20
	.30	.095	1.93	.245	-.030	.0012	.0109	.30
	.40	.096	2.06	.356	-.029	-.0030	-.0157	.40

X-29A ROTARY BALANCE DATA

9BWCV+25f-60c BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
40	-.40	.036	2.36	.518	.028	-.0081	.0309	-.40
	-.30	.033	2.24	.413	.008	-.0055	-.0120	-.30
	-.20	.014	2.12	.316	-.051	-.0027	-.0358	-.20
	-.10	.000	2.00	.198	-.079	-.0135	-.0212	-.10
	-.05	-.005	2.01	.135	-.079	-.0188	-.0095	-.05
	0.00	-.008	2.01	.088	-.021	.0043	.0102	0.00
	0.00	-.006	1.99	.095	-.020	.0067	.0100	0.00
	.05	-.008	1.96	.142	.033	.0115	.0387	.05
	.10	-.004	2.01	.205	.042	.0053	.0521	.10
	.20	.006	2.12	.318	.016	-.0000	.0561	.20
	.30	.023	2.23	.398	-.052	.0121	.0268	.30
	.40	.023	2.38	.536	-.062	.0105	-.0192	.40
45	-.40	-.041	2.66	.660	.051	-.0257	.0436	-.40
	-.30	-.029	2.47	.519	.009	-.0189	-.0195	-.30
	-.20	-.043	2.33	.411	-.038	-.0036	-.0550	-.20
	-.10	-.047	2.24	.299	-.131	-.0017	-.0653	-.10
	-.05	-.050	2.16	.228	-.127	-.0159	-.0380	-.05
	0.00	-.059	2.16	.174	-.038	.0015	.0169	0.00
	0.00	-.056	2.15	.171	-.073	-.0071	.0074	0.00
	.05	-.060	2.18	.226	.057	.0124	.0630	.05
	.10	-.061	2.24	.310	.051	.0045	.0810	.10
	.20	-.052	2.33	.430	-.045	.0045	.0750	.20
	.30	-.045	2.46	.533	-.125	.0239	.0229	.30
	.40	-.056	2.62	.664	-.188	.0288	-.0393	.40
50	-.40	-.161	2.86	.801	.278	-.0376	.0890	-.40
	-.30	-.125	2.69	.651	.165	-.0259	.0003	-.30
	-.20	-.124	2.55	.506	.027	-.0035	-.0555	-.20
	-.10	-.120	2.41	.421	-.160	.0162	-.1063	-.10
	-.05	-.111	2.34	.314	-.177	.0088	-.0838	-.05
	0.00	-.131	2.34	.254	-.054	-.0008	.0140	0.00
	0.00	-.131	2.34	.259	-.037	.0013	.0204	0.00
	.05	-.120	2.35	.307	.071	-.0111	.1023	.05
	.10	-.128	2.41	.412	.044	-.0189	.1227	.10
	.20	-.130	2.53	.551	-.133	.0099	.0654	.20
	.30	-.130	2.69	.697	-.252	.0287	.0109	.30
	.40	-.150	2.87	.825	-.265	.0414	-.0672	.40
55	-.40	-.234	3.00	.793	.316	-.0161	.1494	-.40
	-.30	-.214	2.83	.754	.192	-.0107	.0508	-.30
	-.20	-.192	2.66	.599	.111	-.0117	.0061	-.20
	-.10	-.170	2.53	.434	-.127	.0150	-.1001	-.10
	-.05	-.157	2.47	.354	-.203	.0095	-.1006	-.05
	0.00	-.168	2.43	.317	-.085	-.0001	.0077	0.00
	0.00	-.170	2.42	.311	-.050	-.0034	.0221	0.00
	.05	-.163	2.45	.320	.044	-.0096	.1127	.05
	.10	-.167	2.51	.402	-.025	-.0134	.1012	.10
	.20	-.198	2.64	.677	-.161	.0105	.0336	.20
	.30	-.210	2.77	.823	-.216	.0162	-.0180	.30
	.40	-.228	2.94	.840	-.276	.0191	-.1152	.40

X-29A ROTARY BALANCE DATA

9BWCV+25f-60c

BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
60	-.40	-.269	3.10	.572	.425	-.0105	.2522	-.40
	-.30	-.254	2.95	.594	.266	.0013	.1363	-.30
	-.20	-.255	2.76	.452	.079	.0029	.0531	-.20
	-.10	-.239	2.61	.391	-.037	.0046	-.0371	-.10
	-.05	-.227	2.55	.332	-.095	.0067	-.0709	-.05
	0.00	-.200	2.53	.335	-.068	.0017	.0198	0.00
	0.00	-.200	2.53	.327	-.084	.0015	.0206	0.00
	.05	-.224	2.55	.329	-.024	-.0052	.0736	.05
	.10	-.222	2.57	.376	-.079	-.0047	.0500	.10
	.20	-.240	2.73	.463	-.140	.0004	-.0123	.20
	.30	-.228	2.88	.514	-.255	.0035	-.0919	.30
	.40	-.255	3.04	.547	-.372	.0199	-.2129	.40
65	-.40	-.287	3.17	.341	.282	-.0215	.2164	-.40
	-.30	-.268	2.97	.321	.173	.0005	.1406	-.30
	-.20	-.232	2.76	.272	.058	.0077	.0440	-.20
	-.10	-.228	2.64	.220	-.066	.0063	-.0253	-.10
	-.05	-.243	2.62	.265	-.072	.0042	-.0343	-.05
	0.00	-.234	2.61	.317	-.070	.0006	.0201	0.00
	0.00	-.236	2.58	.314	-.069	-.0011	.0265	0.00
	.05	-.235	2.59	.242	-.051	-.0037	.0505	.05
	.10	-.222	2.62	.209	-.052	-.0060	.0484	.10
	.20	-.225	2.73	.264	-.156	-.0043	-.0139	.20
	.30	-.248	2.93	.364	-.180	.0034	-.0827	.30
	.40	-.281	3.16	.396	-.276	.0293	-.1631	.40
70	-.40	-.317	3.27	.188	.248	-.0280	.1921	-.40
	-.30	-.293	2.99	.199	.203	-.0026	.1292	-.30
	-.20	-.279	2.82	.162	.040	.0046	.0326	-.20
	-.10	-.279	2.70	.127	-.076	.0046	-.0271	-.10
	-.05	-.279	2.67	.173	-.076	.0027	-.0233	-.05
	0.00	-.290	2.69	.253	-.077	.0019	.0073	0.00
	0.00	-.285	2.68	.261	-.073	.0010	.0115	0.00
	.05	-.275	2.67	.171	-.037	-.0012	.0445	.05
	.10	-.276	2.70	.128	-.037	-.0023	.0533	.10
	.20	-.274	2.81	.176	-.125	-.0002	-.0042	.20
	.30	-.280	2.98	.229	-.219	.0081	-.0641	.30
	.40	-.297	3.21	.224	-.239	.0359	-.1290	.40
75	-.40	-.344	3.30	.017	.231	-.0283	.1528	-.40
	-.30	-.316	3.05	.069	.152	-.0051	.0937	-.30
	-.20	-.304	2.85	.058	.015	.0007	.0139	-.20
	-.10	-.300	2.74	.074	-.061	.0025	-.0289	-.10
	-.05	-.292	2.69	.093	-.084	.0014	-.0322	-.05
	0.00	-.295	2.72	.208	-.067	.0013	.0134	0.00
	0.00	-.304	2.74	.208	-.071	.0011	.0182	0.00
	.05	-.290	2.70	.084	-.017	.0006	.0615	.05
	.10	-.294	2.72	.076	-.037	.0005	.0597	.10
	.20	-.301	2.85	.080	-.110	.0040	.0112	.20
	.30	-.309	3.04	.083	-.192	.0123	-.0540	.30
	.40	-.310	3.23	-.051	-.302	.0399	-.1235	.40

X-29A ROTARY BALANCE DATA

9BWCV+25f-60c BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
80	-.40	-.346	3.30	-.212	.255	-.0264	.1369	-.40
	-.30	-.330	3.08	-.084	.149	-.0133	.0832	-.30
	-.20	-.336	2.89	-.046	.013	-.0030	.0087	-.20
	-.10	-.331	2.77	-.016	-.056	-.0000	-.0330	-.10
	-.05	-.326	2.72	-.007	-.057	-.0001	-.0274	-.05
	0.00	-.317	2.75	.075	-.052	.0018	.0116	0.00
	0.00	-.322	2.74	.080	-.058	.0020	.0165	0.00
	.05	-.323	2.74	.008	-.031	.0021	.0395	.05
	.10	-.320	2.75	-.022	-.014	.0044	.0572	.10
	.20	-.341	2.88	-.042	-.072	.0081	.0104	.20
	.30	-.329	3.05	-.062	-.177	.0204	-.0557	.30
	.40	-.345	3.30	-.158	-.266	.0358	-.1083	.40
85	-.40	-.382	3.37	-.201	.210	-.0334	.1243	-.40
	-.30	-.375	3.11	-.146	.076	-.0173	.0590	-.30
	-.20	-.373	2.91	-.111	-.004	-.0055	.0048	-.20
	-.10	-.356	2.78	-.121	-.052	-.0024	-.0312	-.10
	-.05	-.350	2.75	-.104	-.040	-.0007	-.0122	-.05
	0.00	-.348	2.78	-.072	-.030	.0018	.0075	0.00
	0.00	-.354	2.76	-.064	-.037	-.0006	.0108	0.00
	.05	-.350	2.75	-.092	-.029	.0042	.0289	.05
	.10	-.350	2.75	-.122	-.021	.0057	.0511	.10
	.20	-.368	2.90	-.098	-.074	.0122	.0103	.20
	.30	-.371	3.10	-.128	-.122	.0233	-.0342	.30
	.40	-.383	3.36	-.153	-.255	.0454	-.1033	.40
90	-.40	-.345	3.33	-.213	.190	-.0450	.1195	-.40
	-.30	-.395	3.06	-.196	.082	-.0239	.0555	-.30
	-.20	-.388	2.87	-.172	.042	-.0133	.0118	-.20
	-.10	-.374	2.74	-.183	.017	-.0052	-.0236	-.10
	-.05	-.371	2.72	-.169	.003	-.0034	-.0104	-.05
	0.00	-.368	2.74	-.148	-.005	.0012	.0042	0.00
	0.00	-.365	2.72	-.157	-.013	.0034	.0028	0.00
	.05	-.367	2.70	-.186	-.030	.0076	.0348	.05
	.10	-.372	2.73	-.181	-.033	.0107	.0409	.10
	.20	-.381	2.86	-.173	-.099	.0206	.0014	.20
	.30	-.390	3.06	-.181	-.143	.0343	-.0416	.30
	.40	-.356	3.30	-.189	-.259	.0602	-.1104	.40

***** X-29A ROTARY BALANCE DATA *****

9BWCVp+10+25f-60c BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.40	.261	.15	-.224	-.099	.1170	-.0138	-.40
	-.30	.230	.20	-.207	-.137	.0936	-.0004	-.30
	-.20	.222	.25	-.216	-.134	.0627	.0047	-.20
	-.10	.220	.30	-.224	-.132	.0335	.0081	-.10
	-.05	.218	.32	-.229	-.126	.0189	.0100	-.05
	0.00	.213	.31	-.243	-.153	.0059	.0121	0.00
	0.00	.215	.31	-.245	-.153	.0056	.0124	0.00
	.05	.222	.34	-.249	-.113	-.0079	.0111	.05
	.10	.228	.34	-.266	-.105	-.0220	.0100	.10
	.20	.235	.27	-.286	-.095	-.0521	.0097	.20
	.30	.245	.25	-.317	-.123	-.0855	.0199	.30
	.40	.262	.27	-.349	-.125	-.1208	.0331	.40
5	-.40	.255	.44	-.214	-.139	.0979	.0003	-.40
	-.30	.239	.48	-.225	-.161	.0829	.0022	-.30
	-.20	.237	.52	-.238	-.140	.0643	.0038	-.20
	-.10	.236	.56	-.244	-.107	.0364	.0041	-.10
	-.05	.236	.57	-.239	-.097	.0235	.0054	-.05
	0.00	.238	.55	-.254	-.113	.0095	.0079	0.00
	0.00	.242	.54	-.251	-.114	.0100	.0078	0.00
	.05	.249	.54	-.257	-.108	-.0060	.0128	.05
	.10	.246	.55	-.271	-.119	-.0226	.0174	.10
	.20	.245	.56	-.298	-.121	-.0593	.0222	.20
	.30	.255	.57	-.324	-.123	-.0962	.0219	.30
	.40	.265	.58	-.335	-.093	-.1251	.0153	.40
10	-.40	.280	.63	-.239	-.148	.0667	.0198	-.40
	-.30	.277	.67	-.254	-.155	.0530	.0170	-.30
	-.20	.271	.75	-.249	-.132	.0415	.0165	-.20
	-.10	.261	.81	-.250	-.122	.0273	.0140	-.10
	-.05	.256	.83	-.251	-.115	.0147	.0156	-.05
	0.00	.258	.82	-.274	-.134	.0021	.0161	0.00
	0.00	.255	.82	-.270	-.134	.0018	.0167	0.00
	.05	.255	.85	-.264	-.108	-.0126	.0150	.05
	.10	.255	.84	-.272	-.114	-.0281	.0130	.10
	.20	.260	.82	-.279	-.095	-.0561	.0065	.20
	.30	.260	.81	-.283	-.069	-.0783	-.0059	.30
	.40	.264	.80	-.292	-.020	-.0973	-.0230	.40
15	-.40	.266	.82	-.129	-.145	.0424	.0354	-.40
	-.30	.265	.83	-.175	-.141	.0292	.0279	-.30
	-.20	.275	.87	-.211	-.138	.0165	.0145	-.20
	-.10	.280	.92	-.241	-.126	-.0009	.0090	-.10
	-.05	.277	.96	-.242	-.120	-.0075	.0067	-.05
	0.00	.277	.97	-.256	-.125	-.0121	.0044	0.00
	0.00	.277	.98	-.255	-.126	-.0103	.0046	0.00
	.05	.266	1.03	-.232	-.097	-.0163	-.0005	.05
	.10	.263	1.03	-.230	-.087	-.0235	-.0071	.10
	.20	.263	1.01	-.221	-.061	-.0388	-.0204	.20
	.30	.262	1.00	-.214	-.044	-.0509	-.0401	.30
	.40	.256	.98	-.199	-.009	-.0543	-.0636	.40

X-29A ROTARY BALANCE DATA

9BWCVp+10+25f-60c BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
20	-.40	.246	1.05	-.037	-.149	.0269	.0487	-.40
	-.30	.263	1.04	-.122	-.114	.0151	.0367	-.30
	-.20	.259	1.09	-.150	-.087	.0046	.0223	-.20
	-.10	.243	1.16	-.163	-.074	-.0049	.0041	-.10
	-.05	.242	1.18	-.168	-.087	-.0090	-.0062	-.05
	0.00	.252	1.16	-.191	-.114	-.0117	-.0140	0.00
	0.00	.250	1.15	-.191	-.112	-.0121	-.0140	0.00
	.05	.244	1.18	-.170	-.091	-.0170	-.0197	.05
	.10	.245	1.18	-.170	-.099	-.0210	-.0259	.10
	.20	.242	1.22	-.152	-.060	-.0242	-.0401	.20
	.30	.238	1.22	-.100	-.013	-.0208	-.0597	.30
	.40	.233	1.24	-.072	.009	-.0342	-.0864	.40
25	-.40	.218	1.31	.095	-.100	.0205	.0536	-.40
	-.30	.211	1.27	-.005	-.056	.0011	.0347	-.30
	-.20	.198	1.33	-.060	-.043	-.0106	.0194	-.20
	-.10	.187	1.38	-.062	-.041	-.0161	.0024	-.10
	-.05	.183	1.40	-.060	-.048	-.0180	-.0048	-.05
	0.00	.188	1.41	-.083	-.069	-.0158	-.0107	0.00
	0.00	.188	1.42	-.084	-.065	-.0168	-.0110	0.00
	.05	.184	1.44	-.069	-.066	-.0143	-.0168	.05
	.10	.188	1.42	-.063	-.076	-.0141	-.0231	.10
	.20	.204	1.39	-.032	-.055	-.0130	-.0382	.20
	.30	.208	1.42	.032	-.007	-.0167	-.0603	.30
	.40	.209	1.51	.070	-.021	-.0270	-.0795	.40
30	-.40	.150	1.61	.255	-.168	.0019	.0495	-.40
	-.30	.147	1.55	.117	-.057	-.0133	.0353	-.30
	-.20	.136	1.57	.041	.016	-.0206	.0213	-.20
	-.10	.125	1.62	.029	.008	-.0168	.0106	-.10
	-.05	.125	1.66	.044	.006	-.0152	.0057	-.05
	0.00	.138	1.65	.036	-.036	-.0127	.0013	0.00
	0.00	.133	1.65	.041	-.034	-.0140	.0017	0.00
	.05	.131	1.67	.068	-.028	-.0118	-.0059	.05
	.10	.137	1.67	.089	-.034	-.0121	-.0095	.10
	.20	.158	1.63	.141	-.040	-.0151	-.0078	.20
	.30	.172	1.69	.179	-.063	-.0176	-.0293	.30
	.40	.169	1.78	.239	-.080	-.0224	-.0486	.40
35	-.40	.085	1.94	.406	-.260	-.0069	.0339	-.40
	-.30	.079	1.82	.244	-.131	-.0206	.0231	-.30
	-.20	.071	1.81	.102	.039	-.0232	.0193	-.20
	-.10	.065	1.84	.129	.061	-.0139	.0277	-.10
	-.05	.068	1.86	.154	.031	-.0110	.0211	-.05
	0.00	.076	1.85	.172	-.012	-.0085	.0173	0.00
	0.00	.070	1.87	.167	-.006	-.0096	.0170	0.00
	.05	.071	1.86	.223	-.011	-.0141	.0207	.05
	.10	.075	1.86	.247	-.033	-.0138	.0184	.10
	.20	.089	1.91	.321	-.055	-.0130	.0185	.20
	.30	.098	1.98	.382	-.083	-.0091	-.0028	.30
	.40	.096	2.11	.429	-.145	-.0040	-.0535	.40

X-29A ROTARY BALANCE DATA

9BWCVp+10+25f-60c BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
40	-.40	.005	2.21	.545	-.215	-.0204	.0382	-.40
	-.30	-.024	1.87	.406	-.213	-.0261	-.0118	-.30
	-.20	-.049	1.64	.224	-.015	-.0380	.0017	-.20
	-.10	-.058	1.61	.255	.134	-.0241	.0559	-.10
	-.05	-.060	1.60	.293	.084	-.0213	.0561	-.05
	0.00	-.036	1.90	.313	.046	-.0188	.0475	0.00
	0.00	-.037	1.89	.314	.036	-.0172	.0489	0.00
	.05	-.042	1.88	.367	.028	-.0167	.0446	.05
	.10	-.043	1.87	.384	-.027	-.0260	.0466	.10
	.20	-.033	1.93	.459	-.102	-.0233	.0403	.20
	.30	-.035	2.00	.533	-.155	-.0215	.0253	.30
	.40	-.053	2.07	.595	-.215	-.0109	-.0235	.40
45	-.40	-.124	1.83	.664	-.042	-.0419	.0595	-.40
	-.30	-.133	1.65	.555	-.260	-.0188	-.0410	-.30
	-.20	-.154	1.48	.317	-.066	-.0387	-.0202	-.20
	-.10	-.151	1.44	.351	.177	-.0280	.0673	-.10
	-.05	-.156	1.47	.418	.163	-.0333	.0762	-.05
	0.00	-.147	1.53	.464	.073	-.0311	.0805	0.00
	0.00	-.148	1.53	.455	.091	-.0322	.0793	0.00
	.05	-.152	1.61	.486	.038	-.0320	.0719	.05
	.10	-.148	1.63	.526	-.001	-.0339	.0653	.10
	.20	-.146	1.71	.544	-.108	-.0245	.0449	.20
	.30	-.133	1.83	.640	-.201	-.0127	.0195	.30
	.40	-.160	1.98	.756	-.229	.0029	-.0335	.40
50	-.40	-.154	2.40	.726	.188	-.0434	.0775	-.40
	-.30	-.154	2.33	.552	.013	-.0389	-.0225	-.30
	-.20	-.160	2.09	.405	-.156	-.0300	-.0594	-.20
	-.10	-.161	1.97	.370	.198	-.0264	.0704	-.10
	-.05	-.174	2.00	.462	.175	-.0335	.0891	-.05
	0.00	-.182	1.97	.515	.089	-.0356	.0757	0.00
	0.00	-.192	1.98	.512	.115	-.0370	.0709	0.00
	.05	-.215	2.02	.567	.078	-.0447	.0593	.05
	.10	-.214	2.08	.622	.040	-.0451	.0507	.10
	.20	-.210	2.16	.663	-.095	-.0253	.0154	.20
	.30	-.198	2.34	.755	-.254	-.0018	-.0217	.30
	.40	-.200	2.52	.860	-.231	.0156	-.0522	.40
55	-.40	-.202	2.40	.612	.207	-.0438	.1259	-.40
	-.30	-.192	2.33	.523	.135	-.0417	.0211	-.30
	-.20	-.196	2.28	.395	-.069	-.0404	-.0890	-.20
	-.10	-.203	2.08	.379	.192	-.0236	.0708	-.10
	-.05	-.203	2.07	.405	.137	-.0267	.0802	-.05
	0.00	-.218	2.14	.553	.096	-.0180	.0662	0.00
	0.00	-.218	2.14	.562	.102	-.0184	.0695	0.00
	.05	-.253	2.20	.644	.050	-.0131	.0414	.05
	.10	-.253	2.23	.670	-.026	-.0127	.0146	.10
	.20	-.242	2.34	.710	-.091	-.0157	-.0382	.20
	.30	-.243	2.52	.831	-.243	-.0125	-.0560	.30
	.40	-.237	2.66	.767	-.285	-.0023	-.0909	.40

X-29A ROTARY BALANCE DATA

9BWCVp+10+25f-60c BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
60	-.40	-.226	2.52	.512	.173	-.0464	.1476	-.40
	-.30	-.226	2.35	.471	.103	-.0360	.0317	-.30
	-.20	-.236	2.28	.366	-.001	-.0348	-.0471	-.20
	-.10	-.250	2.17	.339	.107	-.0184	.0482	-.10
	-.05	-.237	2.15	.290	.080	-.0193	.0370	-.05
	0.00	-.205	2.14	.335	.018	-.0180	.0140	0.00
	0.00	-.220	2.14	.337	.040	-.0194	.0180	0.00
	.05	-.272	2.21	.371	.004	-.0189	-.0145	.05
	.10	-.258	2.21	.361	-.069	-.0193	-.0550	.10
	.20	-.282	2.41	.543	-.157	-.0212	-.0997	.20
	.30	-.289	2.56	.565	-.339	-.0211	-.1761	.30
	.40	-.279	2.70	.433	-.408	-.0058	-.2179	.40
65	-.40	-.260	2.61	.344	.050	-.0476	.0887	-.40
	-.30	-.253	2.41	.348	.024	-.0244	.0295	-.30
	-.20	-.265	2.28	.306	-.021	-.0236	-.0311	-.20
	-.10	-.253	2.24	.271	.029	-.0181	.0086	-.10
	-.05	-.242	2.22	.188	.043	-.0182	.0055	-.05
	0.00	-.217	2.19	.175	-.026	-.0186	-.0190	0.00
	0.00	-.225	2.20	.184	-.010	-.0174	-.0166	0.00
	.05	-.241	2.22	.183	-.029	-.0193	-.0326	.05
	.10	-.247	2.25	.202	-.069	-.0196	-.0568	.10
	.20	-.271	2.38	.255	-.199	-.0214	-.1246	.20
	.30	-.308	2.58	.304	-.321	-.0145	-.1717	.30
	.40	-.290	2.74	.128	-.493	.0113	-.2181	.40
70	-.40	-.274	2.66	.121	.116	-.0457	.0853	-.40
	-.30	-.297	2.49	.234	-.026	-.0272	.0185	-.30
	-.20	-.296	2.36	.156	-.083	-.0222	-.0517	-.20
	-.10	-.301	2.33	.238	.005	-.0185	-.0091	-.10
	-.05	-.297	2.27	.142	.033	-.0186	.0064	-.05
	0.00	-.283	2.28	.141	-.015	-.0180	-.0117	0.00
	0.00	-.283	2.26	.139	-.021	-.0180	-.0137	0.00
	.05	-.297	2.29	.137	-.039	-.0180	-.0311	.05
	.10	-.304	2.31	.135	-.074	-.0186	-.0500	.10
	.20	-.310	2.42	.159	-.185	-.0202	-.0916	.20
	.30	-.348	2.65	.226	-.314	-.0134	-.1495	.30
	.40	-.333	2.83	.020	-.482	.0140	-.2085	.40
75	-.40	-.329	2.74	.060	.087	-.0471	.0830	-.40
	-.30	-.329	2.53	.099	-.020	-.0344	.0246	-.30
	-.20	-.321	2.39	.064	-.082	-.0275	-.0527	-.20
	-.10	-.321	2.34	.185	-.006	-.0212	-.0129	-.10
	-.05	-.317	2.30	.095	.032	-.0214	.0145	-.05
	0.00	-.305	2.29	.102	-.024	-.0190	-.0024	0.00
	0.00	-.306	2.28	.091	-.027	-.0188	-.0033	0.00
	.05	-.320	2.31	.099	-.027	-.0190	-.0196	.05
	.10	-.326	2.33	.077	-.067	-.0185	-.0320	.10
	.20	-.332	2.43	.036	-.171	-.0176	-.0700	.20
	.30	-.361	2.65	.050	-.279	-.0128	-.1190	.30
	.40	-.381	2.89	-.100	-.357	.0079	-.1671	.40

X-29A ROTARY BALANCE DATA

9BWCVp+10+25f-60c BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
80	-.40	-.367	2.83	.005	.075	-.0560	.0840	-.40
	-.30	-.368	2.59	.019	-.034	-.0403	.0216	-.30
	-.20	-.344	2.42	-.031	-.083	-.0313	-.0343	-.20
	-.10	-.344	2.35	.034	-.018	-.0254	-.0193	-.10
	-.05	-.348	2.31	-.017	.009	-.0239	.0081	-.05
	0.00	-.340	2.31	.021	-.041	-.0200	.0016	0.00
	0.00	-.340	2.33	.014	-.049	-.0229	.0053	0.00
	.05	-.355	2.31	.019	-.044	-.0192	-.0131	.05
	.10	-.365	2.35	-.006	-.076	-.0187	-.0232	.10
	.20	-.368	2.46	-.059	-.157	-.0157	-.0662	.20
	.30	-.373	2.66	-.081	-.288	-.0082	-.1092	.30
	.40	-.363	2.90	-.313	-.371	.0089	-.1616	.40
85	-.40	-.361	2.85	.001	.077	-.0659	.0861	-.40
	-.30	-.387	2.62	-.031	-.033	-.0487	.0259	-.30
	-.20	-.369	2.42	-.070	-.071	-.0379	-.0167	-.20
	-.10	-.354	2.36	-.070	-.021	-.0308	-.0272	-.10
	-.05	-.358	2.32	-.097	.015	-.0266	.0007	-.05
	0.00	-.356	2.31	-.077	-.022	-.0236	.0045	0.00
	0.00	-.376	2.30	-.106	-.008	-.0240	.0056	0.00
	.05	-.378	2.31	-.093	-.060	-.0194	-.0094	.05
	.10	-.388	2.35	-.115	-.088	-.0175	-.0212	.10
	.20	-.386	2.47	-.126	-.156	-.0138	-.0521	.20
	.30	-.382	2.68	-.197	-.253	-.0063	-.0910	.30
	.40	-.363	2.98	-.304	-.285	.0084	-.1424	.40
90	-.40	-.357	2.85	-.068	.079	-.0728	.0936	-.40
	-.30	-.389	2.61	-.084	-.018	-.0557	.0308	-.30
	-.20	-.379	2.42	-.129	-.066	-.0448	-.0155	-.20
	-.10	-.364	2.33	-.167	-.033	-.0367	-.0226	-.10
	-.05	-.366	2.32	-.164	-.007	-.0312	-.0210	-.05
	0.00	-.366	2.31	-.142	-.037	-.0238	-.0062	0.00
	0.00	-.373	2.35	-.157	-.018	-.0257	-.0116	0.00
	.05	-.384	2.34	-.158	-.031	-.0213	-.0031	.05
	.10	-.391	2.36	-.159	-.078	-.0175	-.0158	.10
	.20	-.402	2.48	-.195	-.151	-.0107	-.0430	.20
	.30	-.398	2.70	-.260	-.211	-.0039	-.0772	.30
	.40	-.355	2.95	-.333	-.275	.0176	-.1360	.40

***** X-29A ROTARY BALANCE DATA *****

9BWCV+25f-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.60	.303	.31	-.407	.046	.1613	-.0346	-.60
	-.50	.278	.23	-.405	.035	.1491	-.0315	-.50
	-.40	.253	.25	-.398	.010	.1275	-.0249	-.40
	-.30	.236	.30	-.388	-.014	.0962	-.0179	-.30
	-.20	.229	.32	-.391	-.023	.0617	-.0135	-.20
	-.10	.233	.36	-.421	-.003	.0299	-.0081	-.10
	0.00	.234	.36	-.437	-.022	-.0006	-.0007	0.00
	0.00	.238	.37	-.446	-.019	-.0005	-.0010	0.00
	.10	.237	.37	-.423	.005	-.0334	.0070	.10
	.20	.229	.32	-.392	.011	-.0653	.0134	.20
	.30	.231	.29	-.390	.004	-.0986	.0174	.30
	.40	.246	.27	-.407	.010	-.1316	.0237	.40
	.50	.267	.26	-.422	-.014	-.1521	.0314	.50
	.60	.287	.34	-.428	-.021	-.1686	.0359	.60
5	-.60	.278	.63	-.395	-.048	.1417	-.0075	-.60
	-.50	.276	.51	-.434	-.033	.1267	-.0106	-.50
	-.40	.262	.51	-.432	-.032	.1142	-.0073	-.40
	-.30	.252	.57	-.436	-.033	.0924	-.0032	-.30
	-.20	.249	.60	-.433	-.031	.0629	-.0014	-.20
	-.10	.249	.61	-.415	-.013	.0294	-.0006	-.10
	0.00	.251	.59	-.419	-.024	-.0013	.0008	0.00
	0.00	.252	.58	-.420	-.019	-.0004	-.0001	0.00
	.10	.248	.61	-.415	.007	-.0327	-.0010	.10
	.20	.246	.61	-.431	.019	-.0658	.0007	.20
	.30	.248	.58	-.434	.030	-.0958	.0027	.30
	.40	.261	.51	-.428	.024	-.1173	.0090	.40
	.50	.274	.52	-.424	.017	-.1326	.0145	.50
	.60	.271	.63	-.384	.025	-.1437	.0104	.60
10	-.60	.245	.93	-.331	-.142	.1151	.0483	-.60
	-.50	.280	.75	-.423	-.078	.0912	.0253	-.50
	-.40	.292	.73	-.450	-.045	.0766	.0136	-.40
	-.30	.278	.76	-.428	-.033	.0647	.0115	-.30
	-.20	.267	.82	-.425	-.024	.0487	.0095	-.20
	-.10	.253	.87	-.419	-.018	.0240	.0086	-.10
	0.00	.256	.86	-.435	-.017	-.0006	.0017	0.00
	0.00	.256	.86	-.432	-.018	-.0004	.0006	0.00
	.10	.253	.87	-.416	.006	-.0271	-.0076	.10
	.20	.266	.83	-.420	.012	-.0519	-.0092	.20
	.30	.277	.77	-.422	.009	-.0663	-.0120	.30
	.40	.281	.73	-.432	.017	-.0793	-.0160	.40
	.50	.270	.76	-.407	.037	-.0927	-.0266	.50
	.60	.231	.94	-.328	.077	-.1151	-.0501	.60

X-29A ROTARY BALANCE DATA

9BWCV+25f-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
15	-.60	.218	1.21	-.213	-.196	.0870	.0866	-.60
	-.50	.271	1.02	-.358	-.139	.0611	.0747	-.50
	-.40	.290	.93	-.415	-.091	.0440	.0527	-.40
	-.30	.295	.95	-.442	-.048	.0345	.0298	-.30
	-.20	.291	.99	-.441	-.038	.0238	.0159	-.20
	-.10	.282	1.04	-.436	-.007	.0123	.0083	-.10
	0.00	.265	1.08	-.430	-.013	-.0020	.0009	0.00
	0.00	.264	1.08	-.428	-.011	-.0024	.0011	0.00
	.10	.263	1.06	-.400	-.005	-.0153	-.0085	.10
	.20	.279	.99	-.424	.016	-.0259	-.0167	.20
	.30	.287	.95	-.420	.026	-.0376	-.0310	.30
	.40	.281	.94	-.398	.045	-.0469	-.0506	.40
	.50	.254	1.01	-.329	.078	-.0619	-.0700	.50
	.60	.198	1.21	-.178	.106	-.0900	-.0791	.60
20	-.60	.179	1.54	-.038	-.213	.0689	.0830	-.60
	-.50	.241	1.31	-.254	-.114	.0388	.0786	-.50
	-.40	.261	1.19	-.344	-.066	.0228	.0711	-.40
	-.30	.267	1.17	-.376	-.032	.0122	.0549	-.30
	-.20	.264	1.18	-.389	-.021	.0075	.0303	-.20
	-.10	.258	1.23	-.413	-.013	-.0004	.0102	-.10
	0.00	.269	1.23	-.442	-.018	-.0027	.0023	0.00
	0.00	.271	1.23	-.443	-.015	-.0021	.0030	0.00
	.10	.263	1.23	-.416	-.004	-.0053	-.0062	.10
	.20	.263	1.19	-.379	.001	-.0122	-.0257	.20
	.30	.265	1.16	-.361	.019	-.0175	-.0503	.30
	.40	.257	1.21	-.320	.042	-.0275	-.0654	.40
	.50	.232	1.31	-.180	.097	-.0438	-.0699	.50
	.60	.175	1.53	-.006	.103	-.0737	-.0717	.60
25	-.60	.143	1.89	.150	-.186	.0586	.0708	-.60
	-.50	.213	1.63	-.075	-.095	.0290	.0642	-.50
	-.40	.231	1.48	-.223	-.009	.0044	.0603	-.40
	-.30	.222	1.45	-.313	.020	-.0010	.0467	-.30
	-.20	.211	1.45	-.315	.013	-.0117	.0300	-.20
	-.10	.200	1.45	-.317	-.001	-.0113	.0147	-.10
	0.00	.205	1.45	-.344	-.023	-.0020	.0040	0.00
	0.00	.207	1.45	-.348	-.024	-.0005	.0039	0.00
	.10	.201	1.44	-.311	-.023	.0050	-.0069	.10
	.20	.214	1.43	-.312	-.058	.0071	-.0209	.20
	.30	.225	1.47	-.276	-.033	-.0008	-.0322	.30
	.40	.229	1.47	-.146	.042	-.0107	-.0465	.40
	.50	.208	1.64	-.020	.049	-.0328	-.0483	.50
	.60	.148	1.89	.141	.063	-.0616	-.0663	.60

X-29A ROTARY BALANCE DATA

9BWCV+25f-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
30	-.60	.096	2.28	.334	-.158	.0376	.0898	-.60
	-.50	.168	1.98	.104	-.130	.0181	.0621	-.50
	-.40	.179	1.79	-.009	-.086	.0039	.0384	-.40
	-.30	.169	1.70	-.131	-.013	-.0068	.0279	-.30
	-.20	.149	1.67	-.163	-.017	-.0132	.0207	-.20
	-.10	.135	1.66	-.212	-.010	-.0147	.0114	-.10
	0.00	.140	1.65	-.255	-.020	-.0018	.0056	0.00
	0.00	.137	1.66	-.256	-.014	-.0002	.0051	0.00
	.10	.138	1.65	-.198	-.014	.0113	.0007	.10
	.20	.153	1.67	-.155	-.018	.0114	-.0097	.20
	.30	.175	1.69	-.072	-.001	.0029	-.0070	.30
	.40	.178	1.80	.016	.025	-.0046	-.0249	.40
	.50	.151	1.99	.157	.055	-.0172	-.0552	.50
	.60	.086	2.27	.362	.035	-.0350	-.0901	.60
35	-.60	.007	2.60	.506	-.177	.0205	.1013	-.60
	-.50	.097	2.31	.272	-.119	.0078	.0658	-.50
	-.40	.118	2.11	.128	-.059	-.0040	.0293	-.40
	-.30	.107	1.97	.072	-.043	-.0061	.0043	-.30
	-.20	.085	1.90	.017	-.079	-.0038	-.0094	-.20
	-.10	.073	1.86	-.105	-.034	-.0116	-.0023	-.10
	0.00	.086	1.85	-.162	-.014	.0002	.0079	0.00
	0.00	.086	1.85	-.160	-.022	.0016	.0071	0.00
	.10	.072	1.86	-.082	-.010	.0079	.0157	.10
	.20	.086	1.91	.022	.014	.0030	.0196	.20
	.30	.105	1.99	.071	-.043	.0105	.0050	.30
	.40	.112	2.10	.175	-.034	.0061	-.0266	.40
	.50	.085	2.30	.342	-.021	-.0044	-.0594	.50
	.60	.001	2.57	.531	-.044	-.0178	-.1157	.60
40	-.50	.009	2.60	.416	-.003	-.0064	.0781	-.50
	-.40	.036	2.42	.269	.043	-.0169	.0332	-.40
	-.30	.046	2.29	.228	.009	-.0148	-.0103	-.30
	-.20	.029	2.17	.176	-.093	-.0004	-.0452	-.20
	-.10	.013	2.07	.029	-.122	-.0058	-.0271	-.10
	0.00	.009	2.06	-.065	-.012	.0083	.0103	0.00
	0.00	.010	2.06	-.065	-.025	.0055	.0081	0.00
	.10	.009	2.09	.041	.041	-.0005	.0483	.10
	.20	.026	2.17	.182	.025	.0061	.0531	.20
	.30	.033	2.27	.225	-.060	.0212	.0085	.30
	.40	.033	2.41	.329	-.060	.0179	-.0299	.40
	.50	-.001	2.62	.477	-.030	.0123	-.0794	.50
45	-.50	-.059	2.83	.505	.226	-.0301	.1356	-.50
	-.40	-.034	2.66	.385	.157	-.0307	.0544	-.40
	-.30	-.010	2.56	.352	.023	-.0257	-.0168	-.30
	-.20	-.027	2.43	.304	-.068	-.0026	-.0626	-.20
	-.10	-.034	2.30	.161	-.144	-.0047	-.0602	-.10
	0.00	-.043	2.22	.045	.011	.0057	.0238	0.00
	0.00	-.041	2.23	.031	.002	.0089	.0134	0.00
	.10	-.045	2.32	.170	.059	.0046	.0796	.10
	.20	-.030	2.42	.281	-.037	.0116	.0631	.20
	.30	-.028	2.53	.378	-.159	.0293	.0109	.30
	.40	-.029	2.69	.458	-.195	.0368	-.0572	.40
	.50	-.058	2.88	.583	-.212	.0341	-.1298	.50

X-29A ROTARY BALANCE DATA

9BWCV+25f-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
50	-.50	-.155	3.07	.575	.314	-.0351	.1913	-.50
	-.40	-.132	2.86	.552	.281	-.0327	.0794	-.40
	-.30	-.100	2.77	.494	.187	-.0287	.0017	-.30
	-.20	-.101	2.63	.403	.029	-.0086	-.0663	-.20
	-.10	-.095	2.46	.286	-.131	.0067	-.1045	-.10
	0.00	-.105	2.38	.134	.031	.0109	.0461	0.00
	0.00	-.106	2.38	.131	.015	.0144	.0387	0.00
	.10	-.102	2.46	.286	.041	-.0142	.1208	.10
	.20	-.104	2.61	.414	-.131	.0121	.0566	.20
	.30	-.106	2.76	.557	-.241	.0299	.0011	.30
	.40	-.126	2.94	.635	-.271	.0479	-.0788	.40
	.50	-.157	3.10	.718	-.202	.0380	-.1594	.50
55	-.60	-.184	3.26	-.135	.557	-.0414	.3099	-.60
	-.50	-.223	3.20	.472	.461	-.0278	.2809	-.50
	-.40	-.192	2.99	.562	.323	-.0110	.1541	-.40
	-.30	-.186	2.91	.639	.212	-.0138	.0418	-.30
	-.20	-.166	2.72	.508	.103	-.0061	-.0199	-.20
	-.10	-.138	2.54	.297	-.099	.0137	-.1080	-.10
	0.00	-.136	2.45	.197	.058	-.0060	.0644	0.00
	0.00	-.138	2.48	.187	.030	-.0016	.0547	0.00
	.10	-.141	2.56	.312	-.002	-.0146	.0979	.10
	.20	-.169	2.70	.548	-.145	.0093	.0227	.20
	.30	-.189	2.90	.707	-.217	.0147	-.0248	.30
	.40	-.198	3.00	.689	-.294	.0195	-.1229	.40
	.50	-.223	3.11	.343	-.400	.0352	-.3055	.50
	.60	-.185	3.25	-.104	-.490	.0476	-.3047	.60
60	-.60	-.108	3.34	-.250	.484	-.0498	.2958	-.60
	-.50	-.124	3.22	.020	.463	-.0518	.2735	-.50
	-.40	-.227	3.15	.493	.423	-.0173	.2349	-.40
	-.30	-.224	3.03	.551	.238	.0004	.1112	-.30
	-.20	-.222	2.80	.377	.078	.0030	.0461	-.20
	-.10	-.206	2.62	.272	-.027	.0061	-.0438	-.10
	0.00	-.168	2.53	.223	.013	-.0016	.0558	0.00
	0.00	-.173	2.54	.225	-.030	.0001	.0330	0.00
	.10	-.208	2.61	.285	-.045	-.0044	.0466	.10
	.20	-.217	2.77	.366	-.120	-.0021	-.0215	.20
	.30	-.219	2.96	.525	-.278	.0063	-.1129	.30
	.40	-.212	3.07	.402	-.386	.0234	-.2268	.40
	.50	-.127	3.21	.060	-.422	.0555	-.2478	.50
	.60	-.118	3.32	-.205	-.383	.0531	-.2742	.60
65	-.60	-.198	3.52	-.164	.418	-.0552	.2941	-.60
	-.50	-.210	3.34	.027	.291	-.0487	.2508	-.50
	-.40	-.235	3.21	.228	.293	-.0270	.2139	-.40
	-.30	-.231	3.02	.240	.224	-.0042	.1439	-.30
	-.20	-.203	2.77	.190	.060	.0072	.0324	-.20
	-.10	-.192	2.65	.136	-.046	.0063	-.0291	-.10
	0.00	-.202	2.60	.238	-.039	-.0012	.0174	0.00
	0.00	-.207	2.62	.246	-.034	-.0015	.0340	0.00
	.10	-.190	2.64	.127	-.048	-.0066	.0420	.10
	.20	-.197	2.75	.195	-.140	-.0062	-.0196	.20
	.30	-.215	2.96	.288	-.199	.0036	-.0951	.30
	.40	-.235	3.20	.282	-.255	.0300	-.1717	.40
	.50	-.219	3.30	.085	-.212	.0513	-.2130	.50
	.60	-.218	3.49	-.101	-.236	.0600	-.2814	.60

X-29A ROTARY BALANCE DATA

9BWCV+25f-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
70	-.60	-.231	3.62	-.137	.409	-.0656	.3179	-.60
	-.50	-.232	3.40	-.107	.309	-.0536	.2374	-.50
	-.40	-.265	3.24	.099	.271	-.0307	.1830	-.40
	-.30	-.247	3.00	.111	.221	-.0032	.1220	-.30
	-.20	-.241	2.81	.100	.052	.0041	.0271	-.20
	-.10	-.243	2.70	.068	-.054	.0040	-.0283	-.10
	0.00	-.260	2.68	.210	-.051	.0007	.0057	0.00
	0.00	-.255	2.69	.196	-.061	.0008	.0164	0.00
	.10	-.240	2.69	.065	-.027	-.0032	.0464	.10
	.20	-.238	2.82	.112	-.108	-.0013	-.0092	.20
	.30	-.243	3.01	.171	-.218	.0081	-.0774	.30
	.40	-.254	3.22	.144	-.203	.0373	-.1353	.40
	.50	-.231	3.36	-.072	-.165	.0607	-.2086	.50
	.60	-.242	3.61	-.109	-.178	.0754	-.3043	.60
75	-.60	-.301	3.73	-.229	.363	-.0843	.3493	-.60
	-.50	-.293	3.50	-.166	.284	-.0590	.2243	-.50
	-.40	-.277	3.26	-.068	.268	-.0300	.1463	-.40
	-.30	-.271	3.04	.012	.170	-.0062	.0844	-.30
	-.20	-.274	2.84	.030	.030	.0006	.0106	-.20
	-.10	-.267	2.72	.035	-.050	.0011	-.0313	-.10
	0.00	-.270	2.72	.147	-.041	-.0012	.0100	0.00
	0.00	-.277	2.73	.153	-.065	.0005	.0141	0.00
	.10	-.262	2.72	.037	-.014	-.0006	.0549	.10
	.20	-.265	2.83	.044	-.101	.0029	.0053	.20
	.30	-.261	3.03	.042	-.184	.0128	-.0619	.30
	.40	-.251	3.21	-.102	-.291	.0383	-.1300	.40
	.50	-.282	3.45	-.144	-.201	.0687	-.2091	.50
	.60	-.292	3.70	-.221	-.168	.0901	-.3263	.60
80	-.60	-.248	3.74	-.347	.547	-.0938	.3581	-.60
	-.50	-.343	3.55	-.278	.332	-.0600	.2156	-.50
	-.40	-.289	3.28	-.245	.269	-.0281	.1329	-.40
	-.30	-.276	3.03	-.112	.151	-.0147	.0744	-.30
	-.20	-.295	2.85	-.054	.029	-.0039	.0057	-.20
	-.10	-.288	2.72	-.044	-.033	-.0013	-.0382	-.10
	0.00	-.280	2.71	.050	-.017	.0009	.0121	0.00
	0.00	-.278	2.71	.068	-.034	-.0009	.0131	0.00
	.10	-.278	2.72	-.047	-.010	.0022	.0552	.10
	.20	-.291	2.84	-.068	-.072	.0074	.0068	.20
	.30	-.275	3.03	-.089	-.178	.0203	-.0645	.30
	.40	-.275	3.26	-.205	-.246	.0341	-.1163	.40
	.50	-.300	3.53	-.246	-.285	.0668	-.2039	.50
	.60	-.255	3.73	-.312	-.337	.1004	-.3387	.60

X-29A ROTARY BALANCE DATA

9BWCV+25f-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
85	-.60	-.119	3.76	-.281	.509	-.0965	.3319	-.60
	-.50	-.216	3.54	-.249	.441	-.0570	.2072	-.50
	-.40	-.324	3.32	-.210	.207	-.0348	.1185	-.40
	-.30	-.323	3.06	-.157	.091	-.0168	.0531	-.30
	-.20	-.326	2.85	-.123	.022	-.0084	.0011	-.20
	-.10	-.309	2.72	-.134	-.031	-.0031	-.0318	-.10
	0.00	-.301	2.71	-.092	-.010	.0009	.0048	0.00
	0.00	-.303	2.71	-.075	-.042	.0022	.0098	0.00
	.10	-.305	2.72	-.133	-.021	.0049	.0516	.10
	.20	-.319	2.84	-.116	-.067	.0104	.0104	.20
	.30	-.312	3.05	-.141	-.126	.0226	-.0390	.30
	.40	-.317	3.29	-.172	-.227	.0440	-.1069	.40
	.50	-.206	3.48	-.204	-.387	.0722	-.1987	.50
	.60	-.055	3.71	-.245	-.323	.1062	-.3113	.60
90	-.60	-.079	3.72	-.292	.509	-.0985	.3198	-.60
	-.50	-.197	3.49	-.240	.389	-.0708	.2080	-.50
	-.40	-.286	3.25	-.227	.200	-.0426	.1204	-.40
	-.30	-.339	3.00	-.196	.074	-.0243	.0539	-.30
	-.20	-.334	2.80	-.174	.033	-.0121	.0122	-.20
	-.10	-.325	2.69	-.176	-.015	-.0060	-.0237	-.10
	0.00	-.317	2.68	-.163	-.041	.0021	.0090	0.00
	0.00	-.317	2.68	-.151	-.054	.0040	.0043	0.00
	.10	-.318	2.67	-.187	-.067	.0109	.0438	.10
	.20	-.321	2.78	-.174	-.105	.0205	-.0006	.20
	.30	-.329	2.99	-.187	-.146	.0355	-.0435	.30
	.40	-.300	3.23	-.200	-.281	.0590	-.1131	.40
	.50	-.184	3.44	-.204	-.327	.0865	-.2035	.50
	.60	-.046	3.66	-.233	-.363	.1159	-.3072	.60

***** X-29A ROTARY BALANCE DATA *****

9BWCVp+10+25f-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.50	.301	.02	-.318	-.148	.1330	-.0259	-.50
	-.40	.278	.02	-.332	-.163	.1161	-.0137	-.40
	-.30	.251	.02	-.310	-.181	.0931	.0018	-.30
	-.20	.246	.06	-.322	-.166	.0625	.0068	-.20
	-.10	.242	.09	-.328	-.161	.0329	.0102	-.10
	0.00	.237	.10	-.348	-.186	.0058	.0148	0.00
	0.00	.238	.10	-.348	-.183	.0064	.0140	0.00
	.10	.254	.12	-.380	-.140	-.0207	.0110	.10
	.20	.260	.08	-.411	-.131	-.0501	.0099	.20
	.30	.274	.07	-.447	-.173	-.0827	.0232	.30
	.40	.277	.14	-.481	-.209	-.1178	.0311	.40
	.50	.289	.26	-.515	-.221	-.1454	.0327	.50
5	-.50	.301	.26	-.337	-.167	.1096	.0004	-.50
	-.40	.280	.26	-.346	-.199	.0987	.0024	-.40
	-.30	.270	.29	-.354	-.190	.0828	.0058	-.30
	-.20	.267	.34	-.375	-.165	.0646	.0076	-.20
	-.10	.272	.36	-.402	-.134	.0371	.0062	-.10
	0.00	.274	.36	-.413	-.145	.0109	.0121	0.00
	0.00	.274	.36	-.415	-.146	.0110	.0111	0.00
	.10	.278	.37	-.417	-.146	-.0206	.0172	.10
	.20	.279	.37	-.438	-.164	-.0559	.0229	.20
	.30	.282	.38	-.452	-.169	-.0927	.0216	.30
	.40	.292	.40	-.469	-.151	-.1228	.0157	.40
	.50	.297	.50	-.487	-.105	-.1431	.0036	.50
10	-.50	.291	.48	-.355	-.197	.0863	.0159	-.50
	-.40	.302	.46	-.410	-.196	.0666	.0190	-.40
	-.30	.303	.49	-.422	-.182	.0537	.0194	-.30
	-.20	.305	.54	-.424	-.158	.0421	.0158	-.20
	-.10	.294	.61	-.417	-.130	.0289	.0181	-.10
	0.00	.291	.63	-.429	-.155	.0041	.0204	0.00
	0.00	.288	.62	-.425	-.151	.0050	.0188	0.00
	.10	.288	.64	-.417	-.137	-.0257	.0172	.10
	.20	.284	.63	-.418	-.134	-.0546	.0100	.20
	.30	.291	.63	-.442	-.113	-.0778	-.0054	.30
	.40	.291	.64	-.460	-.090	-.0974	-.0260	.40
	.50	.285	.68	-.462	-.044	-.1049	-.0565	.50
15	-.50	.264	.78	-.245	-.186	.0672	.0387	-.50
	-.40	.282	.66	-.311	-.178	.0462	.0310	-.40
	-.30	.293	.66	-.356	-.158	.0339	.0269	-.30
	-.20	.307	.70	-.387	-.148	.0213	.0188	-.20
	-.10	.306	.74	-.400	-.142	.0025	.0131	-.10
	0.00	.303	.80	-.415	-.149	-.0116	.0101	0.00
	0.00	.300	.78	-.410	-.146	-.0126	.0113	0.00
	.10	.288	.85	-.387	-.104	-.0240	-.0018	.10
	.20	.286	.86	-.382	-.082	-.0407	-.0170	.20
	.30	.281	.86	-.382	-.070	-.0559	-.0376	.30
	.40	.277	.85	-.376	-.056	-.0598	-.0652	.40
	.50	.260	.93	-.359	-.015	-.0685	-.1002	.50

X-29A ROTARY BALANCE DATA

9BWCVp+10+25f-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
20	-.50	.253	1.00	-.146	-.170	.0543	.0580	-.50
	-.40	.284	.87	-.270	-.152	.0302	.0563	-.40
	-.30	.286	.89	-.312	-.132	.0198	.0422	-.30
	-.20	.272	.94	-.316	-.103	.0077	.0258	-.20
	-.10	.261	1.01	-.328	-.100	-.0005	.0064	-.10
	0.00	.270	1.01	-.351	-.136	-.0087	-.0120	0.00
	0.00	.268	1.01	-.351	-.128	-.0089	-.0112	0.00
	.10	.265	1.04	-.337	-.105	-.0206	-.0238	.10
	.20	.260	1.09	-.327	-.067	-.0288	-.0371	.20
	.30	.262	1.08	-.295	-.037	-.0275	-.0585	.30
	.40	.259	1.10	-.258	-.011	-.0366	-.0836	.40
	.50	.247	1.20	-.243	-.009	-.0499	-.1120	.50
25	-.50	.215	1.27	.004	-.171	.0420	.0678	-.50
	-.40	.234	1.16	-.109	-.090	.0190	.0562	-.40
	-.30	.225	1.13	-.191	-.063	-.0014	.0358	-.30
	-.20	.214	1.19	-.226	-.048	-.0098	.0196	-.20
	-.10	.204	1.22	-.226	-.054	-.0148	.0020	-.10
	0.00	.208	1.27	-.249	-.071	-.0155	-.0096	0.00
	0.00	.207	1.26	-.244	-.082	-.0157	-.0088	0.00
	.10	.210	1.30	-.228	-.063	-.0175	-.0226	.10
	.20	.226	1.27	-.196	-.046	-.0174	-.0346	.20
	.30	.234	1.29	-.155	-.047	-.0204	-.0549	.30
	.40	.233	1.36	-.133	-.071	-.0276	-.0790	.40
	.50	.219	1.47	-.067	-.044	-.0368	-.1046	.50
30	-.50	.158	1.63	.220	-.257	.0220	.0567	-.50
	-.40	.165	1.48	.014	-.195	-.0008	.0489	-.40
	-.30	.169	1.43	-.099	-.052	-.0167	.0320	-.30
	-.20	.157	1.45	-.140	.019	-.0203	.0222	-.20
	-.10	.149	1.48	-.127	-.012	-.0174	.0087	-.10
	0.00	.151	1.49	-.128	-.060	-.0179	-.0033	0.00
	0.00	.149	1.50	-.128	-.062	-.0178	-.0038	0.00
	.10	.160	1.52	-.070	-.045	-.0139	-.0082	.10
	.20	.181	1.51	-.022	-.037	-.0157	-.0077	.20
	.30	.198	1.56	-.008	-.076	-.0145	-.0299	.30
	.40	.194	1.63	.031	-.129	-.0197	-.0558	.40
	.50	.173	1.80	.087	-.050	-.0206	-.0934	.50
35	-.50	.099	1.99	.367	-.268	.0060	.0655	-.50
	-.40	.107	1.81	.159	-.283	-.0133	.0253	-.40
	-.30	.103	1.73	.014	-.115	-.0263	.0213	-.30
	-.20	.095	1.71	-.073	.065	-.0257	.0256	-.20
	-.10	.086	1.74	-.013	.075	-.0163	.0265	-.10
	0.00	.088	1.74	.009	-.042	-.0088	.0063	0.00
	0.00	.084	1.74	.012	-.036	-.0081	.0060	0.00
	.10	.092	1.75	.098	-.014	-.0149	.0179	.10
	.20	.104	1.79	.167	-.035	-.0103	.0185	.20
	.30	.120	1.86	.204	-.130	-.0052	-.0211	.30
	.40	.113	1.99	.219	-.160	-.0031	-.0680	.40
	.50	.102	2.13	.241	-.160	-.0042	-.1179	.50

X-29A ROTARY BALANCE DATA

9BWCVp+10+25f-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
40	-.50	.017	2.46	.560	-.096	-.0236	.0887	-.50
	-.40	.029	2.06	.356	-.195	-.0234	.0229	-.40
	-.30	-.002	1.74	.189	-.195	-.0326	-.0069	-.30
	-.20	-.030	1.53	.033	.049	-.0394	.0154	-.20
	-.10	-.037	1.48	.129	.131	-.0236	.0539	-.10
	0.00	-.018	1.78	.161	.040	-.0150	.0327	0.00
	0.00	-.021	1.78	.163	.056	-.0149	.0289	0.00
	.10	-.020	1.75	.255	-.018	-.0193	.0406	.10
	.20	-.011	1.79	.311	-.086	-.0177	.0352	.20
	.30	-.010	1.86	.361	-.190	-.0217	.0143	.30
	.40	-.027	1.93	.370	-.207	-.0101	-.0449	.40
	.50	-.041	1.97	.318	-.071	.0100	-.1119	.50
45	-.50	-.098	2.23	.590	.038	-.0366	.1486	-.50
	-.40	-.062	2.07	.443	-.082	-.0430	.0474	-.40
	-.30	-.059	1.91	.353	-.212	-.0224	-.0395	-.30
	-.20	-.084	1.76	.130	.010	-.0441	-.0054	-.20
	-.10	-.078	1.72	.248	.198	-.0268	.0745	-.10
	0.00	-.082	1.82	.293	.050	-.0162	.0558	0.00
	0.00	-.086	1.81	.299	.056	-.0179	.0567	0.00
	.10	-.074	1.89	.407	-.005	-.0251	.0626	.10
	.20	-.072	1.96	.420	-.114	-.0212	.0405	.20
	.30	-.077	2.13	.486	-.209	-.0187	.0215	.30
	.40	-.099	2.24	.536	-.222	.0034	-.0469	.40
	.50	-.117	2.32	.340	-.244	.0160	-.1585	.50
50	-.50	-.132	2.70	.655	.181	-.0344	.1779	-.50
	-.40	-.088	2.62	.503	.199	-.0424	.0664	-.40
	-.30	-.076	2.57	.336	-.005	-.0448	-.0405	-.30
	-.20	-.097	2.32	.231	-.068	-.0405	-.0432	-.20
	-.10	-.097	2.22	.293	.205	-.0272	.0858	-.10
	0.00	-.125	2.23	.384	.052	-.0331	.0619	0.00
	0.00	-.126	2.22	.398	.052	-.0319	.0611	0.00
	.10	-.139	2.32	.507	.024	-.0413	.0512	.10
	.20	-.137	2.42	.539	-.100	-.0280	.0190	.20
	.30	-.132	2.64	.589	-.226	-.0057	-.0198	.30
	.40	-.143	2.82	.656	-.266	.0132	-.0528	.40
	.50	-.097	2.74	.139	-.425	.0207	-.2840	.50
55	-.50	-.165	2.78	.358	.152	-.0444	.1753	-.50
	-.40	-.136	2.64	.373	.208	-.0444	.0923	-.40
	-.30	-.121	2.53	.349	.146	-.0454	-.0013	-.30
	-.20	-.126	2.48	.273	-.053	-.0426	-.0724	-.20
	-.10	-.137	2.31	.294	.176	-.0231	.0791	-.10
	0.00	-.165	2.38	.458	.082	-.0132	.0479	0.00
	0.00	-.159	2.36	.456	.086	-.0174	.0496	0.00
	.10	-.175	2.45	.536	.009	-.0131	-.0015	.10
	.20	-.173	2.58	.581	-.079	-.0158	-.0517	.20
	.30	-.179	2.80	.708	-.193	-.0140	-.0628	.30
	.40	-.164	2.89	.463	-.338	.0051	-.1290	.40
	.50	-.149	2.90	.011	-.494	.0347	-.3129	.50

X-29A ROTARY BALANCE DATA

9BWCVp+10+25f-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
60	-.50	-.149	2.81	.195	.123	-.0506	.1440	-.50
	-.40	-.158	2.72	.324	.164	-.0491	.0976	-.40
	-.30	-.167	2.57	.329	.131	-.0389	.0163	-.30
	-.20	-.178	2.49	.285	-.009	-.0439	-.0556	-.20
	-.10	-.177	2.38	.240	.124	-.0171	.0485	-.10
	0.00	-.156	2.36	.259	.043	-.0179	.0031	0.00
	0.00	-.161	2.35	.266	.030	-.0157	.0053	0.00
	.10	-.186	2.43	.257	-.048	-.0181	-.0707	.10
	.20	-.216	2.62	.428	-.141	-.0206	-.1209	.20
	.30	-.225	2.81	.420	-.304	-.0208	-.1936	.30
	.40	-.213	2.94	.286	-.444	-.0063	-.2413	.40
	.50	-.159	3.06	-.025	-.499	.0359	-.3176	.50
65	-.50	-.212	2.96	.120	.090	-.0597	.1448	-.50
	-.40	-.172	2.80	.137	.100	-.0474	.0687	-.40
	-.30	-.186	2.63	.246	.048	-.0276	.0187	-.30
	-.20	-.202	2.51	.254	.017	-.0302	-.0298	-.20
	-.10	-.181	2.45	.181	.073	-.0161	.0109	-.10
	0.00	-.159	2.40	.117	-.006	-.0153	-.0295	0.00
	0.00	-.161	2.39	.122	-.007	-.0166	-.0236	0.00
	.10	-.177	2.44	.127	-.052	-.0183	-.0707	.10
	.20	-.202	2.58	.158	-.181	-.0213	-.1361	.20
	.30	-.231	2.79	.181	-.396	-.0095	-.1932	.30
	.40	-.218	2.95	-.060	-.519	.0110	-.2378	.40
	.50	-.214	3.13	-.334	-.554	.0353	-.3042	.50
70	-.50	-.224	3.09	.071	.152	-.0646	.1522	-.50
	-.40	-.211	2.86	.011	.131	-.0487	.0729	-.40
	-.30	-.226	2.69	.159	-.010	-.0291	.0090	-.30
	-.20	-.225	2.56	.094	-.047	-.0221	-.0550	-.20
	-.10	-.228	2.52	.164	.046	-.0170	-.0054	-.10
	0.00	-.222	2.49	.086	-.001	-.0181	-.0231	0.00
	0.00	-.224	2.48	.087	.007	-.0165	-.0222	0.00
	.10	-.230	2.52	.076	-.047	-.0178	-.0603	.10
	.20	-.244	2.62	.079	-.139	-.0206	-.1030	.20
	.30	-.286	2.89	.134	-.296	-.0125	-.1664	.30
	.40	-.273	3.06	-.125	-.481	.0135	-.2246	.40
	.50	-.254	3.21	-.455	-.487	.0323	-.2656	.50
75	-.50	-.212	3.18	.012	.286	-.0700	.1606	-.50
	-.40	-.248	2.94	.003	.165	-.0514	.0744	-.40
	-.30	-.256	2.73	.046	.012	-.0363	.0149	-.30
	-.20	-.249	2.58	.015	-.046	-.0282	-.0517	-.20
	-.10	-.254	2.53	.135	.038	-.0211	-.0115	-.10
	0.00	-.260	2.50	.063	.008	-.0181	-.0116	0.00
	0.00	-.251	2.48	.065	-.009	-.0199	-.0096	0.00
	.10	-.261	2.53	.034	-.035	-.0184	-.0446	.10
	.20	-.271	2.65	-.015	-.141	-.0184	-.0817	.20
	.30	-.298	2.87	-.025	-.254	-.0146	-.1365	.30
	.40	-.307	3.08	-.225	-.389	.0056	-.1917	.40
	.50	-.296	3.33	-.505	-.299	.0321	-.2524	.50

X-29A ROTARY BALANCE DATA

9BWCVp+10+25f-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
80	-.50	-.260	3.24	-.057	.308	-.0835	.1707	-.50
	-.40	-.281	3.02	-.011	.164	-.0613	.0830	-.40
	-.30	-.293	2.78	-.017	.004	-.0433	.0149	-.30
	-.20	-.268	2.60	-.055	-.034	-.0329	-.0335	-.20
	-.10	-.265	2.52	-.001	.021	-.0256	-.0202	-.10
	0.00	-.282	2.48	-.026	-.028	-.0205	-.0084	0.00
	0.00	-.275	2.49	-.025	-.025	-.0220	-.0096	0.00
	.10	-.288	2.52	-.051	-.037	-.0181	-.0356	.10
	.20	-.300	2.66	-.094	-.116	-.0169	-.0714	.20
	.30	-.306	2.84	-.164	-.224	-.0113	-.1179	.30
	.40	-.303	3.09	-.388	-.319	.0037	-.1707	.40
	.50	-.295	3.45	-.510	-.155	.0313	-.2336	.50
85	-.50	-.257	3.24	-.002	.252	-.0933	.1765	-.50
	-.40	-.286	3.03	-.010	.140	-.0700	.0824	-.40
	-.30	-.318	2.78	-.041	.001	-.0502	.0215	-.30
	-.20	-.297	2.60	-.079	-.029	-.0387	-.0169	-.20
	-.10	-.282	2.52	-.090	.022	-.0321	-.0258	-.10
	0.00	-.306	2.47	-.101	-.003	-.0232	-.0025	0.00
	0.00	-.302	2.48	-.118	-.001	-.0237	-.0096	0.00
	.10	-.320	2.51	-.136	-.050	-.0178	-.0305	.10
	.20	-.323	2.64	-.154	-.121	-.0145	-.0589	.20
	.30	-.322	2.84	-.231	-.201	-.0092	-.0966	.30
	.40	-.286	3.14	-.346	-.199	.0038	-.1502	.40
	.50	-.248	3.42	-.443	-.209	.0350	-.2261	.50
90	-.50	-.241	3.20	.011	.220	-.0984	.1867	-.50
	-.40	-.293	3.00	-.046	.125	-.0770	.0957	-.40
	-.30	-.318	2.75	-.068	.022	-.0584	.0291	-.30
	-.20	-.313	2.59	-.126	-.027	-.0462	-.0136	-.20
	-.10	-.300	2.48	-.187	.015	-.0398	-.0221	-.10
	0.00	-.321	2.47	-.160	-.000	-.0243	-.0047	0.00
	0.00	-.318	2.46	-.185	-.005	-.0258	-.0091	0.00
	.10	-.329	2.51	-.164	-.048	-.0173	-.0217	.10
	.20	-.345	2.63	-.204	-.127	-.0109	-.0489	.20
	.30	-.335	2.84	-.264	-.183	-.0034	-.0820	.30
	.40	-.297	3.12	-.343	-.210	.0127	-.1411	.40
	.50	-.239	3.36	-.418	-.240	.0389	-.2156	.50

***** X-29A ROTARY BALANCE DATA *****

9BWCV+25f-30r-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.40	.226	.27	-.374	-.025	.1146	.0177	-.40
	-.30	.211	.30	-.361	-.044	.0823	.0174	-.30
	-.20	.209	.33	-.369	-.052	.0497	.0148	-.20
	-.10	.210	.38	-.399	-.040	.0192	.0158	-.10
	0.00	.214	.37	-.420	-.055	-.0102	.0218	0.00
	0.00	.205	.37	-.402	-.055	-.0108	.0221	0.00
	.10	.208	.37	-.382	-.042	-.0441	.0341	.10
	.20	.205	.32	-.357	-.036	-.0770	.0459	.20
	.30	.210	.30	-.364	-.041	-.1096	.0550	.30
	.40	.224	.27	-.382	-.050	-.1404	.0662	.40
5	-.40	.226	.54	-.399	-.068	.1045	.0274	-.40
	-.30	.220	.58	-.406	-.064	.0810	.0256	-.30
	-.20	.219	.60	-.397	-.062	.0518	.0244	-.20
	-.10	.219	.61	-.378	-.053	.0181	.0247	-.10
	0.00	.222	.59	-.388	-.063	-.0122	.0243	0.00
	0.00	.226	.58	-.391	-.057	-.0114	.0241	0.00
	.10	.221	.61	-.388	-.038	-.0436	.0249	.10
	.20	.217	.60	-.398	-.022	-.0761	.0296	.20
	.30	.223	.57	-.402	-.020	-.1051	.0335	.30
	.40	.239	.51	-.401	-.018	-.1241	.0440	.40
10	-.40	.257	.74	-.429	-.080	.0720	.0470	-.40
	-.30	.245	.77	-.411	-.088	.0589	.0389	-.30
	-.20	.232	.83	-.403	-.064	.0406	.0365	-.20
	-.10	.218	.87	-.386	-.051	.0152	.0353	-.10
	0.00	.226	.85	-.400	-.053	-.0092	.0270	0.00
	0.00	.227	.85	-.401	-.051	-.0089	.0263	0.00
	.10	.226	.87	-.388	-.025	-.0366	.0162	.10
	.20	.233	.83	-.387	-.024	-.0598	.0133	.20
	.30	.245	.77	-.400	-.004	-.0748	.0152	.30
	.40	.250	.72	-.413	-.011	-.0873	.0171	.40
15	-.40	.260	.94	-.377	-.103	.0394	.0785	-.40
	-.30	.264	.95	-.411	-.075	.0298	.0555	-.30
	-.20	.260	.98	-.411	-.067	.0178	.0399	-.20
	-.10	.244	1.04	-.389	-.050	.0070	.0338	-.10
	0.00	.229	1.07	-.398	-.050	-.0079	.0219	0.00
	0.00	.231	1.08	-.400	-.050	-.0077	.0209	0.00
	.10	.233	1.05	-.375	-.035	-.0210	.0097	.10
	.20	.251	.98	-.401	-.013	-.0327	-.0004	.20
	.30	.252	.94	-.391	.008	-.0439	-.0096	.30
	.40	.242	.95	-.363	.034	-.0546	-.0205	.40
20	-.40	.229	1.20	-.307	-.059	.0178	.0898	-.40
	-.30	.237	1.17	-.350	-.064	.0078	.0752	-.30
	-.20	.238	1.19	-.370	-.050	.0032	.0492	-.20
	-.10	.228	1.22	-.391	-.033	-.0056	.0240	-.10
	0.00	.236	1.21	-.424	-.037	-.0069	.0155	0.00
	0.00	.234	1.21	-.425	-.029	-.0083	.0147	0.00
	.10	.226	1.21	-.381	-.008	-.0109	.0041	.10
	.20	.226	1.18	-.352	-.009	-.0161	-.0099	.20
	.30	.224	1.17	-.326	.010	-.0236	-.0272	.30
	.40	.216	1.23	-.290	.045	-.0348	-.0405	.40

X-29A ROTARY BALANCE DATA

9BWCV+25f-30r-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
25	-.40	.198	1.46	-.193	-.012	.0029	.0718	-.40
	-.30	.191	1.42	-.291	.023	-.0021	.0577	-.30
	-.20	.176	1.44	-.301	.002	-.0118	.0386	-.20
	-.10	.168	1.44	-.300	-.026	-.0127	.0239	-.10
	0.00	.171	1.43	-.332	-.037	-.0072	.0105	0.00
	0.00	.175	1.43	-.337	-.041	-.0043	.0107	0.00
	.10	.170	1.43	-.301	-.038	.0017	.0020	.10
	.20	.184	1.42	-.292	-.057	.0014	-.0097	.20
	.30	.188	1.43	-.254	-.032	-.0080	-.0224	.30
	.40	.185	1.47	-.123	.052	-.0177	-.0254	.40
30	-.40	.142	1.78	.046	-.083	.0018	.0546	-.40
	-.30	.135	1.68	-.103	-.007	-.0073	.0393	-.30
	-.20	.117	1.66	-.144	-.031	-.0155	.0301	-.20
	-.10	.107	1.63	-.191	-.032	-.0155	.0169	-.10
	0.00	.110	1.63	-.240	-.032	-.0013	.0073	0.00
	0.00	.108	1.61	-.237	-.033	-.0026	.0059	0.00
	.10	.111	1.64	-.198	-.021	.0094	.0047	.10
	.20	.127	1.64	-.136	-.019	.0086	.0017	.20
	.30	.140	1.67	-.062	-.005	-.0001	.0052	.30
	.40	.139	1.80	.027	.014	-.0089	.0015	.40
35	-.40	.080	2.07	.216	-.093	-.0058	.0581	-.40
	-.30	.073	1.93	.107	-.053	-.0064	.0213	-.30
	-.20	.053	1.86	.041	-.086	-.0050	.0011	-.20
	-.10	.046	1.80	-.086	-.050	-.0112	-.0018	-.10
	0.00	.058	1.77	-.153	-.030	-.0029	.0069	0.00
	0.00	.057	1.79	-.154	-.037	-.0046	.0074	0.00
	.10	.045	1.81	-.082	.012	.0049	.0200	.10
	.20	.060	1.86	.031	.004	.0006	.0308	.20
	.30	.070	1.96	.071	-.071	.0063	.0257	.30
	.40	.070	2.08	.194	-.048	-.0016	.0007	.40
40	-.40	.014	2.36	.360	-.005	-.0166	.0654	-.40
	-.30	.015	2.24	.259	-.041	-.0152	.0133	-.30
	-.20	-.006	2.12	.169	-.088	-.0038	-.0288	-.20
	-.10	-.017	2.01	.043	-.110	-.0066	-.0296	-.10
	0.00	-.023	2.01	-.070	-.039	-.0011	.0129	0.00
	0.00	-.020	2.01	-.065	-.040	-.0021	.0143	0.00
	.10	-.017	2.02	.038	.047	.0028	.0513	.10
	.20	-.004	2.13	.166	.003	.0003	.0654	.20
	.30	.005	2.24	.218	-.088	.0166	.0337	.30
	.40	.001	2.39	.336	-.078	.0118	-.0044	.40
45	-.40	-.052	2.64	.493	.078	-.0325	.0764	-.40
	-.30	-.043	2.48	.369	.012	-.0244	.0034	-.30
	-.20	-.054	2.36	.278	-.070	-.0080	-.0402	-.20
	-.10	-.060	2.24	.165	-.141	-.0039	-.0609	-.10
	0.00	-.065	2.16	.023	-.049	-.0082	.0123	0.00
	0.00	-.067	2.17	.029	-.040	-.0043	.0203	0.00
	.10	-.068	2.26	.172	.065	.0008	.0849	.10
	.20	-.058	2.36	.287	-.061	.0063	.0799	.20
	.30	-.055	2.49	.375	-.143	.0266	.0331	.30
	.40	-.069	2.66	.480	-.205	.0295	-.0194	.40

X-29A ROTARY BALANCE DATA

9BWCV+25f-30r-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
50	-.40	-.165	2.85	.588	.265	-.0427	.1070	-.40
	-.30	-.137	2.69	.495	.175	-.0283	.0207	-.30
	-.20	-.125	2.55	.381	.037	-.0076	-.0504	-.20
	-.10	-.123	2.40	.291	-.158	.0138	-.1015	-.10
	0.00	-.122	2.31	.134	-.059	-.0043	.0079	0.00
	0.00	-.125	2.30	.128	-.052	-.0040	.0123	0.00
	.10	-.118	2.39	.273	.047	-.0144	.1209	.10
	.20	-.133	2.54	.421	-.132	.0084	.0608	.20
	.30	-.142	2.69	.554	-.249	.0266	.0132	.30
	.40	-.167	2.91	.650	-.264	.0424	-.0503	.40
55	-.40	-.231	2.97	.619	.324	-.0171	.1507	-.40
	-.30	-.213	2.84	.598	.180	-.0107	.0576	-.30
	-.20	-.193	2.65	.484	.101	-.0133	.0036	-.20
	-.10	-.168	2.49	.312	-.107	.0129	-.0912	-.10
	0.00	-.163	2.41	.190	-.062	-.0036	.0031	0.00
	0.00	-.167	2.42	.188	-.060	-.0053	.0014	0.00
	.10	-.162	2.47	.291	-.004	-.0144	.0972	.10
	.20	-.198	2.64	.561	-.146	.0072	.0306	.20
	.30	-.226	2.79	.711	-.221	.0136	-.0159	.30
	.40	-.248	2.96	.701	-.279	.0167	-.0998	.40
60	-.40	-.253	3.04	.450	.420	-.0174	.2626	-.40
	-.30	-.258	2.94	.526	.237	-.0012	.1262	-.30
	-.20	-.259	2.72	.356	.079	.0005	.0567	-.20
	-.10	-.232	2.55	.273	-.032	.0047	-.0322	-.10
	0.00	-.199	2.47	.228	-.048	-.0001	.0188	0.00
	0.00	-.196	2.46	.224	-.074	.0014	.0094	0.00
	.10	-.227	2.54	.272	-.070	-.0073	.0479	.10
	.20	-.245	2.71	.383	-.125	-.0028	-.0134	.20
	.30	-.256	2.89	.540	-.283	.0051	-.0963	.30
	.40	-.251	2.99	.390	-.341	.0176	-.1853	.40
65	-.40	-.274	3.12	.232	.283	-.0281	.2210	-.40
	-.30	-.256	2.93	.229	.210	-.0050	.1498	-.30
	-.20	-.220	2.70	.171	.072	.0053	.0454	-.20
	-.10	-.215	2.57	.131	-.064	.0049	-.0228	-.10
	0.00	-.223	2.54	.235	-.045	-.0021	.0258	0.00
	0.00	-.225	2.54	.233	-.065	-.0009	.0168	0.00
	.10	-.217	2.57	.125	-.052	-.0079	.0461	.10
	.20	-.222	2.69	.195	-.151	-.0067	-.0184	.20
	.30	-.259	2.90	.302	-.217	.0029	-.0903	.30
	.40	-.282	3.11	.311	-.250	.0262	-.1471	.40
70	-.40	-.302	3.19	.096	.233	-.0324	.1960	-.40
	-.30	-.280	2.94	.109	.225	-.0048	.1268	-.30
	-.20	-.267	2.74	.090	.037	.0020	.0353	-.20
	-.10	-.266	2.62	.068	-.061	.0015	-.0236	-.10
	0.00	-.272	2.62	.189	-.070	-.0018	.0086	0.00
	0.00	-.274	2.62	.189	-.067	-.0030	.0162	0.00
	.10	-.259	2.62	.062	-.041	-.0053	.0526	.10
	.20	-.262	2.74	.108	-.122	-.0028	-.0047	.20
	.30	-.273	2.92	.176	-.199	.0066	-.0700	.30
	.40	-.298	3.17	.174	-.212	.0328	-.1192	.40

X-29A ROTARY BALANCE DATA

9BWCV+25f-30r-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
75	-.40	-.322	3.18	-.071	.254	-.0331	.1593	-.40
	-.30	-.306	2.96	.011	.157	-.0069	.0972	-.30
	-.20	-.298	2.76	.023	.007	-.0006	.0173	-.20
	-.10	-.290	2.63	.035	-.067	-.0010	-.0237	-.10
	0.00	-.287	2.64	.155	-.058	-.0007	.0182	0.00
	0.00	-.290	2.64	.160	-.073	-.0013	.0135	0.00
	.10	-.276	2.63	.030	-.034	-.0022	.0581	.10
	.20	-.283	2.75	.036	-.097	.0023	.0089	.20
	.30	-.292	2.96	.043	-.176	.0105	-.0547	.30
	.40	-.304	3.13	-.066	-.237	.0403	-.1191	.40
80	-.40	-.336	3.19	-.240	.251	-.0275	.1410	-.40
	-.30	-.314	2.96	-.102	.131	-.0127	.0840	-.30
	-.20	-.319	2.76	-.065	.003	-.0038	.0155	-.20
	-.10	-.307	2.65	-.040	-.047	-.0032	-.0271	-.10
	0.00	-.294	2.64	.044	-.048	.0004	.0100	0.00
	0.00	-.290	2.63	.030	-.060	-.0004	.0129	0.00
	.10	-.293	2.64	-.058	-.023	.0011	.0559	.10
	.20	-.307	2.75	-.061	-.083	.0059	.0096	.20
	.30	-.302	2.94	-.082	-.164	.0184	-.0587	.30
	.40	-.319	3.19	-.196	-.236	.0356	-.1051	.40
85	-.40	-.363	3.23	-.198	.207	-.0316	.1219	-.40
	-.30	-.350	2.97	-.155	.083	-.0170	.0616	-.30
	-.20	-.349	2.78	-.129	-.010	-.0071	.0109	-.20
	-.10	-.330	2.65	-.130	-.053	-.0040	-.0275	-.10
	0.00	-.317	2.65	-.084	-.044	-.0007	.0134	0.00
	0.00	-.319	2.63	-.097	-.056	-.0002	.0130	0.00
	.10	-.323	2.64	-.134	-.028	.0037	.0523	.10
	.20	-.333	2.76	-.116	-.072	.0103	.0141	.20
	.30	-.340	2.96	-.136	-.127	.0251	-.0399	.30
	.40	-.345	3.20	-.165	-.208	.0437	-.1020	.40
90	-.40	-.324	3.19	-.210	.196	-.0377	.1202	-.40
	-.30	-.368	2.95	-.195	.085	-.0222	.0536	-.30
	-.20	-.357	2.75	-.164	.028	-.0124	.0170	-.20
	-.10	-.339	2.62	-.172	-.018	-.0085	-.0159	-.10
	0.00	-.332	2.61	-.153	-.034	.0008	.0052	0.00
	0.00	-.330	2.63	-.147	-.057	.0011	.0103	0.00
	.10	-.329	2.61	-.189	-.054	.0105	.0448	.10
	.20	-.340	2.72	-.166	-.099	.0194	.0011	.20
	.30	-.348	2.91	-.180	-.133	.0354	-.0423	.30
	.40	-.316	3.15	-.186	-.222	.0557	-.1061	.40

***** X-29A ROTARY BALANCE DATA *****

9BWCVp+10+25f-r-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.40	.227	.20	-.304	-.146	.1008	.0328	-.40
	-.30	.205	.24	-.296	-.202	.0795	.0455	-.30
	-.20	.196	.29	-.299	-.202	.0480	.0518	-.20
	-.10	.193	.33	-.304	-.205	.0180	.0567	-.10
	0.00	.190	.33	-.338	-.219	-.0056	.0563	0.00
	0.00	.192	.33	-.334	-.228	-.0072	.0581	0.00
	.10	.201	.34	-.362	-.152	-.0292	.0422	.10
	.20	.209	.29	-.397	-.122	-.0557	.0335	.20
	.30	.220	.27	-.420	-.149	-.0900	.0497	.30
	.40	.237	.30	-.453	-.175	-.1285	.0710	.40
5	-.40	.228	.47	-.308	-.185	.0859	.0469	-.40
	-.30	.217	.51	-.329	-.207	.0699	.0435	-.30
	-.20	.210	.56	-.355	-.182	.0540	.0373	-.20
	-.10	.205	.58	-.371	-.137	.0315	.0270	-.10
	0.00	.210	.57	-.395	-.145	.0060	.0297	0.00
	0.00	.213	.57	-.397	-.144	.0058	.0292	0.00
	.10	.216	.58	-.391	-.146	-.0252	.0350	.10
	.20	.221	.58	-.410	-.157	-.0610	.0463	.20
	.30	.230	.59	-.423	-.165	-.0997	.0572	.30
	.40	.242	.59	-.429	-.139	-.1279	.0604	.40
10	-.40	.252	.66	-.377	-.166	.0597	.0471	-.40
	-.30	.248	.70	-.392	-.171	.0473	.0403	-.30
	-.20	.242	.75	-.394	-.148	.0373	.0345	-.20
	-.10	.234	.81	-.390	-.137	.0245	.0335	-.10
	0.00	.231	.82	-.402	-.161	.0009	.0350	0.00
	0.00	.229	.82	-.401	-.157	.0002	.0360	0.00
	.10	.232	.84	-.386	-.145	-.0300	.0394	.10
	.20	.232	.82	-.385	-.140	-.0590	.0403	.20
	.30	.235	.81	-.394	-.117	-.0805	.0294	.30
	.40	.242	.82	-.421	-.070	-.0993	.0127	.40
15	-.40	.237	.85	-.274	-.110	.0384	.0493	-.40
	-.30	.246	.86	-.342	-.156	.0267	.0415	-.30
	-.20	.253	.90	-.364	-.138	.0147	.0326	-.20
	-.10	.249	.95	-.370	-.131	-.0013	.0267	-.10
	0.00	.243	.99	-.380	-.151	-.0141	.0270	0.00
	0.00	.242	.99	-.379	-.150	-.0130	.0267	0.00
	.10	.228	1.05	-.357	-.109	-.0280	.0190	.10
	.20	.228	1.07	-.356	-.092	-.0440	.0074	.20
	.30	.225	1.06	-.344	-.060	-.0564	-.0113	.30
	.40	.221	1.04	-.323	-.004	-.0577	-.0372	.40
20	-.40	.233	1.09	-.224	-.125	.0265	.0646	-.40
	-.30	.239	1.07	-.275	-.108	.0154	.0489	-.30
	-.20	.222	1.12	-.294	-.083	.0018	.0374	-.20
	-.10	.210	1.17	-.313	-.093	-.0091	.0153	-.10
	0.00	.215	1.17	-.341	-.122	-.0165	-.0040	0.00
	0.00	.213	1.17	-.342	-.124	-.0177	-.0042	0.00
	.10	.207	1.23	-.315	-.089	-.0262	-.0131	.10
	.20	.201	1.27	-.296	-.052	-.0261	-.0242	.20
	.30	.204	1.27	-.237	-.009	-.0270	-.0409	.30
	.40	.203	1.30	-.207	.027	-.0369	-.0650	.40

X-29A ROTARY BALANCE DATA

9BWCVp+10+25f-r-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
25	-.40	.191	1.31	-.056	-.078	.0167	.0603	-.40
	-.30	.186	1.28	-.171	-.052	-.0036	.0413	-.30
	-.20	.170	1.35	-.226	-.045	-.0103	.0218	-.20
	-.10	.161	1.39	-.235	-.041	-.0156	.0037	-.10
	0.00	.162	1.42	-.253	-.065	-.0144	-.0074	0.00
	0.00	.157	1.43	-.252	-.063	-.0164	-.0074	0.00
	.10	.163	1.44	-.230	-.070	-.0162	-.0188	.10
	.20	.176	1.45	-.166	-.025	-.0170	-.0230	.20
	.30	.181	1.48	-.095	-.007	-.0189	-.0362	.30
	.40	.187	1.54	-.072	.006	-.0267	-.0578	.40
30	-.40	.139	1.73	.039	-.189	-.0056	.0585	-.40
	-.30	.130	1.64	-.094	-.082	-.0182	.0373	-.30
	-.20	.120	1.68	-.162	-.014	-.0221	.0223	-.20
	-.10	.106	1.72	-.157	-.003	-.0177	.0088	-.10
	0.00	.113	1.74	-.143	-.033	-.0151	-.0005	0.00
	0.00	.113	1.73	-.147	-.027	-.0143	-.0003	0.00
	.10	.119	1.75	-.090	-.040	-.0127	-.0070	.10
	.20	.138	1.73	-.011	-.061	-.0150	.0018	.20
	.30	.156	1.79	.020	-.087	-.0169	-.0142	.30
	.40	.151	1.90	.056	-.106	-.0216	-.0390	.40
35	-.40	.077	2.10	.189	-.266	-.0133	.0304	-.40
	-.30	.065	1.99	.029	-.155	-.0287	.0287	-.30
	-.20	.052	1.98	-.097	.031	-.0258	.0223	-.20
	-.10	.043	2.01	-.044	.059	-.0175	.0269	-.10
	0.00	.051	2.02	.001	.009	-.0144	.0190	0.00
	0.00	.049	2.01	.010	.006	-.0144	.0203	0.00
	.10	.049	2.03	.076	-.019	-.0144	.0198	.10
	.20	.064	2.06	.169	-.051	-.0124	.0245	.20
	.30	.081	2.14	.211	-.090	-.0098	.0093	.30
	.40	.086	2.30	.255	-.148	-.0050	-.0444	.40
40	-.40	.004	2.41	.400	-.225	-.0335	.0601	-.40
	-.30	-.037	2.09	.230	-.260	-.0379	.0061	-.30
	-.20	-.065	1.86	.038	-.006	-.0422	.0126	-.20
	-.10	-.069	1.81	.107	.125	-.0239	.0604	-.10
	0.00	-.045	2.07	.201	.072	-.0216	.0534	0.00
	0.00	-.055	2.08	.189	.074	-.0221	.0533	0.00
	.10	-.063	2.06	.241	-.028	-.0247	.0465	.10
	.20	-.053	2.11	.307	-.095	-.0189	.0448	.20
	.30	-.041	2.20	.405	-.142	-.0086	.0240	.30
	.40	-.063	2.29	.465	-.170	-.0077	-.0177	.40
45	-.40	-.089	2.36	.491	-.089	-.0473	.0700	-.40
	-.30	-.096	2.20	.359	-.297	-.0328	-.0082	-.30
	-.20	-.122	2.03	.170	-.132	-.0420	-.0137	-.20
	-.10	-.119	1.98	.213	.183	-.0279	.0742	-.10
	0.00	-.122	2.05	.308	.070	-.0291	.0802	0.00
	0.00	-.126	2.04	.322	.079	-.0304	.0818	0.00
	.10	-.119	2.12	.391	-.024	-.0317	.0644	.10
	.20	-.116	2.22	.407	-.127	-.0192	.0429	.20
	.30	-.106	2.38	.479	-.201	-.0118	.0268	.30
	.40	-.139	2.53	.560	-.246	.0037	-.0295	.40

X-29A ROTARY BALANCE DATA

9BWCVp+10+25f-r-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
50	-.40	-.120	2.89	.552	.164	-.0466	.0818	-.40
	-.30	-.115	2.83	.375	-.003	-.0454	-.0170	-.30
	-.20	-.131	2.62	.270	-.182	-.0349	-.0466	-.20
	-.10	-.137	2.50	.238	.191	-.0273	.0728	-.10
	0.00	-.172	2.51	.418	.086	-.0383	.0816	0.00
	0.00	-.176	2.50	.413	.078	-.0375	.0843	0.00
	.10	-.186	2.60	.512	.026	-.0441	.0602	.10
	.20	-.187	2.70	.536	-.125	-.0241	.0137	.20
	.30	-.172	2.90	.582	-.245	-.0049	-.0069	.30
	.40	-.179	3.15	.642	-.287	.0173	-.0472	.40
55	-.40	-.170	2.95	.447	.192	-.0492	.1141	-.40
	-.30	-.172	2.84	.392	.126	-.0458	.0164	-.30
	-.20	-.181	2.82	.280	-.090	-.0458	-.0835	-.20
	-.10	-.186	2.61	.268	.204	-.0253	.0719	-.10
	0.00	-.202	2.62	.451	.098	-.0228	.0761	0.00
	0.00	-.199	2.62	.432	.103	-.0217	.0759	0.00
	.10	-.238	2.72	.579	-.003	-.0138	.0154	.10
	.20	-.230	2.86	.623	-.106	-.0157	-.0394	.20
	.30	-.222	3.08	.714	-.223	-.0102	-.0523	.30
	.40	-.208	3.25	.617	-.313	-.0015	-.0902	.40
60	-.40	-.203	3.05	.384	.201	-.0525	.1562	-.40
	-.30	-.208	2.92	.356	.111	-.0424	.0224	-.30
	-.20	-.214	2.81	.273	.013	-.0406	-.0548	-.20
	-.10	-.225	2.70	.247	.123	-.0196	.0531	-.10
	0.00	-.212	2.69	.248	.032	-.0192	.0110	0.00
	0.00	-.226	2.69	.294	.037	-.0180	.0193	0.00
	.10	-.244	2.76	.344	-.064	-.0200	-.0518	.10
	.20	-.268	2.95	.479	-.163	-.0219	-.1095	.20
	.30	-.285	3.17	.591	-.313	-.0241	-.1641	.30
	.40	-.258	3.30	.401	-.416	-.0089	-.2047	.40
65	-.40	-.233	3.16	.235	.084	-.0549	.1059	-.40
	-.30	-.237	2.99	.264	.058	-.0282	.0258	-.30
	-.20	-.252	2.87	.238	-.006	-.0304	-.0361	-.20
	-.10	-.236	2.80	.168	.047	-.0180	.0071	-.10
	0.00	-.214	2.76	.097	-.018	-.0189	-.0163	0.00
	0.00	-.217	2.73	.088	-.016	-.0180	-.0151	0.00
	.10	-.230	2.79	.117	-.060	-.0203	-.0631	.10
	.20	-.262	2.93	.178	-.189	-.0225	-.1395	.20
	.30	-.295	3.15	.221	-.318	-.0156	-.1905	.30
	.40	-.263	3.30	.006	-.574	.0137	-.2401	.40
70	-.40	-.251	3.16	.052	.124	-.0486	.0790	-.40
	-.30	-.270	2.98	.158	-.031	-.0283	.0089	-.30
	-.20	-.276	2.84	.082	-.077	-.0225	-.0560	-.20
	-.10	-.277	2.80	.146	.020	-.0191	-.0111	-.10
	0.00	-.279	2.75	.061	-.016	-.0186	-.0115	0.00
	0.00	-.282	2.79	.055	-.009	-.0194	-.0161	0.00
	.10	-.279	2.78	.063	-.067	-.0200	-.0549	.10
	.20	-.292	2.90	.092	-.169	-.0218	-.1005	.20
	.30	-.330	3.15	.150	-.327	-.0136	-.1692	.30
	.40	-.315	3.36	-.053	-.482	.0125	-.2225	.40

X-29A ROTARY BALANCE DATA

9BWCVp+10+25f-r-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
75	-.40	-.307	3.23	-.006	.094	-.0518	.0806	-.40
	-.30	-.301	3.04	.034	-.022	-.0356	.0177	-.30
	-.20	-.292	2.86	-.005	-.081	-.0281	-.0522	-.20
	-.10	-.296	2.83	.124	.011	-.0222	-.0135	-.10
	0.00	-.297	2.77	.035	-.025	-.0217	-.0040	0.00
	0.00	-.299	2.79	.026	-.009	-.0217	-.0045	0.00
	.10	-.302	2.81	.016	-.059	-.0198	-.0345	.10
	.20	-.308	2.93	-.025	-.160	-.0198	-.0773	.20
	.30	-.341	3.15	-.013	-.281	-.0145	-.1294	.30
	.40	-.367	3.40	-.162	-.385	.0070	-.1837	.40
80	-.40	-.324	3.29	-.020	.123	-.0592	.0818	-.40
	-.30	-.341	3.10	-.039	-.032	-.0416	.0165	-.30
	-.20	-.318	2.90	-.081	-.061	-.0341	-.0371	-.20
	-.10	-.317	2.83	-.007	-.004	-.0264	-.0202	-.10
	0.00	-.335	2.77	-.041	-.041	-.0248	.0048	0.00
	0.00	-.327	2.77	-.042	-.040	-.0233	.0006	0.00
	.10	-.332	2.83	-.059	-.059	-.0203	-.0241	.10
	.20	-.342	2.95	-.113	-.145	-.0186	-.0661	.20
	.30	-.346	3.15	-.171	-.264	-.0114	-.1186	.30
	.40	-.343	3.38	-.380	-.389	.0051	-.1669	.40
85	-.40	-.329	3.29	-.008	.124	-.0677	.0869	-.40
	-.30	-.362	3.06	-.065	-.020	-.0499	.0206	-.30
	-.20	-.337	2.87	-.110	-.045	-.0394	-.0234	-.20
	-.10	-.327	2.78	-.105	-.004	-.0314	-.0276	-.10
	0.00	-.342	2.74	-.144	-.020	-.0235	.0048	0.00
	0.00	-.344	2.72	-.132	-.037	-.0257	.0101	0.00
	.10	-.356	2.76	-.154	-.071	-.0192	-.0189	.10
	.20	-.358	2.90	-.172	-.133	-.0153	-.0508	.20
	.30	-.355	3.10	-.232	-.229	-.0080	-.0969	.30
	.40	-.334	3.41	-.337	-.249	.0064	-.1406	.40
90	-.40	-.332	3.31	-.057	.119	-.0753	.0930	-.40
	-.30	-.372	3.05	-.088	-.006	-.0580	.0302	-.30
	-.20	-.366	2.85	-.154	-.055	-.0459	-.0176	-.20
	-.10	-.350	2.75	-.199	-.003	-.0382	-.0220	-.10
	0.00	-.371	2.72	-.188	-.014	-.0272	-.0018	0.00
	0.00	-.368	2.74	-.193	-.035	-.0239	-.0043	0.00
	.10	-.374	2.77	-.199	-.080	-.0182	-.0157	.10
	.20	-.387	2.89	-.227	-.143	-.0114	-.0447	.20
	.30	-.377	3.12	-.276	-.208	-.0015	-.0783	.30
	.40	-.329	3.39	-.341	-.235	.0153	-.1400	.40

***** X-29A ROTARY BALANCE DATA *****

9BWCV+df(-10/+25)-30r-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.60	.283	.10	-.317	.064	.1157	-.0038	-.60
	-.50	.262	.02	-.343	.034	.0996	.0010	-.50
	-.40	.245	.02	-.340	.013	.0680	.0073	-.40
	-.30	.236	.03	-.319	.001	.0350	.0104	-.30
	-.20	.227	.08	-.313	-.007	.0049	.0091	-.20
	-.10	.228	.13	-.331	.003	-.0232	.0123	-.10
	0.00	.223	.15	-.316	-.025	-.0480	.0234	0.00
	0.00	.225	.15	-.320	-.023	-.0487	.0214	0.00
	.10	.232	.13	-.292	-.005	-.0788	.0298	.10
	.20	.242	.08	-.280	-.012	-.1136	.0381	.20
	.30	.256	.04	-.283	-.023	-.1496	.0481	.30
	.40	.278	.01	-.289	-.041	-.1837	.0607	.40
	.50	.304	-.01	-.278	-.041	-.2120	.0752	.50
	.60	.328	.06	-.253	-.051	-.2402	.0865	.60
5	-.60	.253	.42	-.273	-.026	.1022	.0120	-.60
	-.50	.255	.32	-.342	-.016	.0917	.0106	-.50
	-.40	.243	.33	-.361	-.033	.0748	.0218	-.40
	-.30	.236	.34	-.364	-.032	.0415	.0203	-.30
	-.20	.238	.35	-.344	-.029	.0036	.0204	-.20
	-.10	.240	.35	-.317	-.021	-.0301	.0234	-.10
	0.00	.248	.33	-.326	-.024	-.0592	.0252	0.00
	0.00	.245	.33	-.321	-.022	-.0597	.0258	0.00
	.10	.240	.36	-.314	.007	-.0882	.0261	.10
	.20	.239	.36	-.307	.004	-.1192	.0293	.20
	.30	.246	.34	-.303	-.002	-.1475	.0338	.30
	.40	.261	.29	-.310	-.005	-.1679	.0408	.40
	.50	.288	.29	-.322	-.030	-.1895	.0536	.50
	.60	.303	.34	-.290	-.057	-.2067	.0600	.60
10	-.60	.233	.71	-.190	-.132	.0755	.0664	-.60
	-.50	.270	.56	-.305	-.084	.0570	.0442	-.50
	-.40	.271	.54	-.334	-.066	.0473	.0368	-.40
	-.30	.261	.60	-.348	-.052	.0302	.0419	-.30
	-.20	.249	.62	-.334	-.040	.0007	.0398	-.20
	-.10	.237	.63	-.311	-.029	-.0303	.0334	-.10
	0.00	.247	.59	-.331	-.037	-.0608	.0264	0.00
	0.00	.246	.59	-.327	-.038	-.0596	.0264	0.00
	.10	.249	.61	-.318	-.011	-.0888	.0207	.10
	.20	.259	.57	-.325	-.000	-.1130	.0205	.20
	.30	.270	.52	-.338	-.001	-.1284	.0212	.30
	.40	.276	.49	-.349	-.007	-.1413	.0213	.40
	.50	.274	.51	-.331	-.007	-.1574	.0262	.50
	.60	.244	.67	-.250	-.004	-.1822	.0216	.60

X-29A ROTARY BALANCE DATA

9BWCV+df(-10/+25)-30r-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
15	-.60	.193	1.00	-.105	-.208	.0441	.1044	-.60
	-.50	.249	.79	-.241	-.149	.0240	.0858	-.50
	-.40	.278	.74	-.313	-.101	.0092	.0671	-.40
	-.30	.285	.77	-.351	-.075	.0043	.0530	-.30
	-.20	.279	.81	-.370	-.063	-.0091	.0474	-.20
	-.10	.253	.85	-.328	-.020	-.0312	.0402	-.10
	0.00	.248	.85	-.341	-.024	-.0549	.0278	0.00
	0.00	.248	.85	-.343	-.024	-.0542	.0270	0.00
	.10	.257	.81	-.329	-.025	-.0740	.0165	.10
	.20	.279	.74	-.377	-.013	-.0877	.0118	.20
	.30	.280	.71	-.381	.010	-.1008	.0040	.30
	.40	.277	.71	-.363	.028	-.1124	-.0084	.40
	.50	.253	.80	-.309	.050	-.1301	-.0221	.50
	.60	.195	.95	-.156	.057	-.1579	-.0264	.60
20	-.60	.150	1.34	.106	-.196	.0289	.0956	-.60
	-.50	.221	1.11	-.131	-.112	.0000	.0873	-.50
	-.40	.245	1.01	-.233	-.083	-.0127	.0848	-.40
	-.30	.255	.98	-.274	-.073	-.0216	.0741	-.30
	-.20	.255	1.00	-.300	-.068	-.0238	.0542	-.20
	-.10	.246	1.08	-.329	-.072	-.0310	.0401	-.10
	0.00	.261	1.03	-.382	-.037	-.0504	.0281	0.00
	0.00	.261	1.02	-.379	-.045	-.0498	.0294	0.00
	.10	.245	1.01	-.336	.012	-.0565	.0157	.10
	.20	.256	.95	-.343	-.009	-.0689	.0000	.20
	.30	.259	.96	-.342	-.002	-.0773	-.0160	.30
	.40	.257	1.01	-.335	.004	-.0888	-.0303	.40
	.50	.232	1.09	-.241	.019	-.1049	-.0348	.50
	.60	.173	1.30	-.061	.025	-.1361	-.0286	.60
25	-.60	.116	1.66	.292	-.191	.0225	.0779	-.60
	-.50	.190	1.41	.021	-.109	-.0071	.0759	-.50
	-.40	.213	1.29	-.126	-.023	-.0240	.0669	-.40
	-.30	.208	1.26	-.212	-.022	-.0279	.0607	-.30
	-.20	.201	1.26	-.233	-.019	-.0342	.0464	-.20
	-.10	.192	1.28	-.245	-.042	-.0342	.0343	-.10
	0.00	.198	1.27	-.293	-.054	-.0345	.0272	0.00
	0.00	.198	1.26	-.288	-.054	-.0351	.0278	0.00
	.10	.192	1.25	-.264	-.035	-.0403	.0196	.10
	.20	.205	1.22	-.275	-.039	-.0479	.0044	.20
	.30	.208	1.25	-.256	-.006	-.0585	-.0153	.30
	.40	.228	1.28	-.237	-.020	-.0653	-.0227	.40
	.50	.205	1.43	-.085	.019	-.0905	-.0208	.50
	.60	.140	1.68	.117	.032	-.1195	-.0236	.60

X-29A ROTARY BALANCE DATA

9BWCV+df(-10/+25)-30r-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
30	-.60	.067	2.06	.498	-.126	.0083	.0933	-.60
	-.50	.146	1.77	.249	-.124	-.0137	.0728	-.50
	-.40	.157	1.61	.122	-.093	-.0265	.0533	-.40
	-.30	.145	1.48	-.051	.023	-.0293	.0411	-.30
	-.20	.130	1.50	-.092	-.014	-.0367	.0340	-.20
	-.10	.119	1.50	-.136	-.047	-.0298	.0253	-.10
	0.00	.128	1.48	-.185	-.048	-.0228	.0215	0.00
	0.00	.126	1.46	-.185	-.051	-.0191	.0197	0.00
	.10	.127	1.48	-.146	-.025	-.0191	.0219	.10
	.20	.145	1.49	-.130	-.027	-.0258	.0165	.20
	.30	.162	1.53	-.102	-.020	-.0332	.0027	.30
	.40	.171	1.65	-.025	.011	-.0476	-.0024	.40
	.50	.146	1.85	.097	-.014	-.0669	-.0058	.50
	.60	.085	2.10	.284	-.060	-.0918	-.0324	.60
35	-.60	-.021	2.41	.683	-.146	-.0057	.1096	-.60
	-.50	.073	2.13	.420	-.158	-.0258	.0892	-.50
	-.40	.099	1.94	.307	-.116	-.0346	.0520	-.40
	-.30	.086	1.81	.148	-.029	-.0337	.0224	-.30
	-.20	.066	1.72	.081	-.052	-.0366	.0095	-.20
	-.10	.053	1.69	-.024	-.032	-.0340	.0053	-.10
	0.00	.067	1.66	-.091	-.028	-.0213	.0164	0.00
	0.00	.071	1.66	-.092	-.045	-.0215	.0150	0.00
	.10	.060	1.68	-.018	.004	-.0145	.0286	.10
	.20	.073	1.76	.042	.013	-.0092	.0206	.20
	.30	.094	1.84	.080	-.036	-.0165	.0158	.30
	.40	.098	1.99	.192	-.080	-.0331	.0126	.40
	.50	.061	2.18	.332	-.100	-.0477	-.0010	.50
	.60	-.012	2.46	.471	-.149	-.0674	-.0455	.60
40	-.50	-.015	2.42	.539	-.022	-.0315	.0983	-.50
	-.40	.032	2.23	.466	-.019	-.0401	.0608	-.40
	-.30	.029	2.10	.342	-.059	-.0387	.0143	-.30
	-.20	.004	1.99	.236	-.100	-.0306	-.0205	-.20
	-.10	-.011	1.89	.105	-.091	-.0334	-.0237	-.10
	0.00	-.010	1.87	.017	-.056	-.0293	.0094	0.00
	0.00	-.010	1.87	.014	-.069	-.0297	.0111	0.00
	.10	-.005	1.89	.126	.066	-.0132	.0558	.10
	.20	.014	1.99	.203	.001	-.0139	.0537	.20
	.30	.025	2.14	.252	-.078	-.0080	.0417	.30
	.40	.020	2.30	.390	-.124	-.0197	.0268	.40
	.50	-.032	2.51	.519	-.140	-.0328	.0001	.50
45	-.50	-.095	2.67	.624	.048	-.0531	.1358	-.50
	-.40	-.040	2.52	.591	.034	-.0547	.0708	-.40
	-.30	-.027	2.37	.463	-.029	-.0425	.0002	-.30
	-.20	-.050	2.23	.340	-.063	-.0326	-.0357	-.20
	-.10	-.057	2.13	.228	-.138	-.0309	-.0566	-.10
	0.00	-.063	2.06	.108	-.068	-.0338	.0001	0.00
	0.00	-.062	2.04	.110	-.074	-.0293	-.0026	0.00
	.10	-.052	2.10	.254	.071	-.0289	.0919	.10
	.20	-.042	2.21	.333	-.053	-.0215	.0818	.20
	.30	-.032	2.36	.398	-.146	-.0102	.0492	.30
	.40	-.045	2.54	.517	-.231	-.0158	.0125	.40
	.50	-.101	2.73	.610	-.313	-.0246	-.0199	.50

X-29A ROTARY BALANCE DATA

9BWCV+df(-10/+25)-30r-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
50	-.50	-.183	2.83	.655	.287	-.0557	.1901	-.50
	-.40	-.151	2.73	.697	.239	-.0622	.1036	-.40
	-.30	-.123	2.58	.583	.145	-.0468	.0152	-.30
	-.20	-.124	2.43	.441	.043	-.0221	-.0514	-.20
	-.10	-.119	2.28	.363	-.167	-.0127	-.0970	-.10
	0.00	-.134	2.21	.199	-.032	-.0229	.0069	0.00
	0.00	-.134	2.19	.203	-.065	-.0196	-.0019	0.00
	.10	-.113	2.27	.345	.035	-.0419	.1233	.10
	.20	-.122	2.40	.483	-.109	-.0264	.0710	.20
	.30	-.123	2.52	.577	-.205	-.0102	.0190	.30
	.40	-.146	2.72	.665	-.267	-.0051	-.0272	.40
	.50	-.172	2.86	.606	-.259	-.0177	-.0767	.50
55	-.60	-.245	3.08	-.016	.551	-.0595	.3220	-.60
	-.50	-.258	2.95	.463	.448	-.0449	.3212	-.50
	-.40	-.225	2.90	.695	.334	-.0358	.1685	-.40
	-.30	-.208	2.75	.703	.177	-.0349	.0605	-.30
	-.20	-.187	2.55	.527	.102	-.0307	.0121	-.20
	-.10	-.156	2.36	.364	-.099	-.0107	-.0835	-.10
	0.00	-.153	2.28	.254	-.003	-.0161	.0322	0.00
	0.00	-.156	2.26	.246	-.056	-.0132	.0085	0.00
	.10	-.153	2.35	.364	.000	-.0434	.0992	.10
	.20	-.187	2.48	.605	-.156	-.0255	.0251	.20
	.30	-.199	2.60	.682	-.217	-.0271	-.0245	.30
	.40	-.214	2.75	.677	-.294	-.0295	-.1019	.40
	.50	-.242	2.89	.375	-.407	-.0221	-.2410	.50
	.60	-.243	2.98	-.060	-.497	-.0198	-.2020	.60
60	-.60	-.175	3.09	-.064	.422	-.0637	.3118	-.60
	-.50	-.169	2.98	.153	.400	-.0650	.2734	-.50
	-.40	-.246	2.99	.500	.422	-.0390	.2759	-.40
	-.30	-.252	2.89	.578	.272	-.0246	.1568	-.30
	-.20	-.258	2.66	.438	.070	-.0253	.0543	-.20
	-.10	-.226	2.48	.337	-.035	-.0171	-.0336	-.10
	0.00	-.186	2.42	.293	-.031	-.0221	.0380	0.00
	0.00	-.186	2.40	.290	-.016	-.0222	.0563	0.00
	.10	-.221	2.44	.351	-.048	-.0363	.0531	.10
	.20	-.237	2.62	.450	-.119	-.0371	-.0161	.20
	.30	-.229	2.73	.468	-.263	-.0365	-.0949	.30
	.40	-.227	2.89	.396	-.338	-.0265	-.1830	.40
	.50	-.171	2.96	.172	-.423	-.0061	-.1830	.50
	.60	-.179	3.09	-.082	-.403	-.0156	-.1891	.60
65	-.60	-.266	3.37	-.012	.372	-.0723	.3195	-.60
	-.50	-.264	3.20	.140	.273	-.0649	.2712	-.50
	-.40	-.266	3.06	.282	.297	-.0469	.2298	-.40
	-.30	-.256	2.87	.304	.230	-.0246	.1528	-.30
	-.20	-.212	2.63	.240	.070	-.0153	.0500	-.20
	-.10	-.214	2.52	.205	-.044	-.0192	-.0155	-.10
	0.00	-.218	2.47	.290	-.047	-.0278	.0388	0.00
	0.00	-.220	2.48	.295	-.057	-.0259	.0267	0.00
	.10	-.211	2.47	.185	-.053	-.0359	.0511	.10
	.20	-.216	2.60	.256	-.144	-.0371	-.0156	.20
	.30	-.251	2.79	.356	-.192	-.0296	-.0811	.30
	.40	-.263	2.97	.333	-.263	-.0147	-.1461	.40
	.50	-.256	3.09	.121	-.219	-.0053	-.1713	.50
	.60	-.264	3.26	-.029	-.300	-.0030	-.2075	.60

X-29A ROTARY BALANCE DATA

9BWCV+df(-10/+25)-30r-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
70	-.60	-.292	3.46	-.013	.357	-.0799	.3358	-.60
	-.50	-.286	3.26	-.000	.270	-.0669	.2474	-.50
	-.40	-.302	3.13	.156	.256	-.0476	.1944	-.40
	-.30	-.278	2.88	.172	.224	-.0202	.1234	-.30
	-.20	-.266	2.68	.158	.062	-.0150	.0352	-.20
	-.10	-.266	2.53	.127	-.047	-.0177	-.0173	-.10
	0.00	-.266	2.52	.270	-.055	-.0256	.0215	0.00
	0.00	-.279	2.63	.267	-.071	-.0256	.0190	0.00
	.10	-.262	2.61	.114	-.032	-.0314	.0614	.10
	.20	-.265	2.72	.173	-.118	-.0317	.0005	.20
	.30	-.270	2.89	.219	-.195	-.0261	-.0643	.30
	.40	-.296	3.12	.202	-.210	-.0081	-.1122	.40
	.50	-.279	3.24	-.022	-.220	.0096	-.1638	.50
	.60	-.301	3.49	-.057	-.256	.0160	-.2377	.60
75	-.60	-.375	3.69	-.129	.348	-.0917	.3602	-.60
	-.50	-.357	3.44	-.078	.272	-.0719	.2376	-.50
	-.40	-.326	3.19	-.002	.278	-.0426	.1566	-.40
	-.30	-.314	2.98	.078	.186	-.0216	.0868	-.30
	-.20	-.306	2.77	.085	.016	-.0152	.0166	-.20
	-.10	-.290	2.65	.095	-.038	-.0177	-.0209	-.10
	0.00	-.295	2.64	.207	-.052	-.0216	.0240	0.00
	0.00	-.294	2.63	.199	-.064	-.0215	.0239	0.00
	.10	-.281	2.60	.078	-.019	-.0246	.0662	.10
	.20	-.286	2.71	.081	-.092	-.0224	.0117	.20
	.30	-.290	2.88	.077	-.162	-.0171	-.0528	.30
	.40	-.313	3.09	-.020	-.224	.0035	-.1087	.40
	.50	-.347	3.34	-.089	-.172	.0189	-.1711	.50
	.60	-.371	3.56	-.167	-.206	.0340	-.2691	.60
80	-.60	-.316	3.65	-.259	.573	-.0970	.3581	-.60
	-.50	-.411	3.46	-.193	.336	-.0681	.2270	-.50
	-.40	-.343	3.17	-.165	.289	-.0380	.1355	-.40
	-.30	-.314	2.93	-.065	.170	-.0240	.0807	-.30
	-.20	-.324	2.74	-.007	.045	-.0160	.0170	-.20
	-.10	-.311	2.61	.010	-.020	-.0172	-.0239	-.10
	0.00	-.299	2.59	.105	-.022	-.0169	.0223	0.00
	0.00	-.296	2.57	.083	-.033	-.0165	.0190	0.00
	.10	-.288	2.59	.001	-.005	-.0179	.0608	.10
	.20	-.305	2.68	-.020	-.065	-.0153	.0101	.20
	.30	-.301	2.83	-.032	-.161	-.0064	-.0572	.30
	.40	-.314	3.11	-.165	-.227	.0052	-.0956	.40
	.50	-.359	3.33	-.193	-.246	.0320	-.1801	.50
	.60	-.326	3.51	-.269	-.303	.0474	-.2843	.60

X-29A ROTARY BALANCE DATA

9BWCV+df(-10/+25)-30r-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
85	-.60	-.177	3.67	-.236	.546	-.1043	.3398	-.60
	-.50	-.282	3.48	-.202	.487	-.0662	.2130	-.50
	-.40	-.372	3.26	-.166	.242	-.0386	.1240	-.40
	-.30	-.359	2.99	-.107	.115	-.0255	.0578	-.30
	-.20	-.351	2.78	-.082	.039	-.0171	.0101	-.20
	-.10	-.331	2.65	-.083	-.021	-.0165	-.0212	-.10
	0.00	-.316	2.65	-.032	-.006	-.0155	.0154	0.00
	0.00	-.317	2.62	-.041	-.022	-.0136	.0153	0.00
	.10	-.322	2.65	-.090	-.004	-.0123	.0581	.10
	.20	-.335	2.76	-.077	-.055	-.0085	.0166	.20
	.30	-.340	2.95	-.108	-.107	-.0006	-.0342	.30
	.40	-.348	3.16	-.151	-.219	.0177	-.0969	.40
	.50	-.284	3.37	-.193	-.381	.0391	-.1805	.50
	.60	-.137	3.57	-.204	-.281	.0628	-.2717	.60
90	-.60	-.082	3.67	-.168	.565	-.1071	.3212	-.60
	-.50	-.215	3.43	-.148	.423	-.0802	.2125	-.50
	-.40	-.327	3.21	-.130	.231	-.0491	.1236	-.40
	-.30	-.384	2.97	-.135	.115	-.0301	.0590	-.30
	-.20	-.381	2.76	-.116	.058	-.0202	.0203	-.20
	-.10	-.369	2.64	-.130	.020	-.0174	-.0145	-.10
	0.00	-.361	2.62	-.120	.015	-.0090	.0065	0.00
	0.00	-.373	2.63	-.099	.007	-.0109	.0128	0.00
	.10	-.361	2.62	-.137	-.009	-.0050	.0463	.10
	.20	-.366	2.72	-.115	-.058	.0017	.0023	.20
	.30	-.369	2.92	-.126	-.105	.0128	-.0379	.30
	.40	-.332	3.16	-.164	-.255	.0323	-.1015	.40
	.50	-.206	3.36	-.149	-.279	.0577	-.1856	.50
	.60	-.070	3.59	-.159	-.311	.0760	-.2749	.60

***** X-29A ROTARY BALANCE DATA *****

9BWCVp+10+df(-10/+25)-30r-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.60	.298	-.07	-.096	.014	.0888	-.0182	-.60
	-.50	.260	-.12	-.125	-.058	.0737	.0017	-.50
	-.40	.235	-.09	-.150	-.107	.0558	.0140	-.40
	-.30	.223	-.08	-.162	-.126	.0290	.0298	-.30
	-.20	.217	-.03	-.176	-.140	.0000	.0390	-.20
	-.10	.211	.04	-.188	-.149	-.0250	.0461	-.10
	0.00	.208	.05	-.212	-.178	-.0497	.0526	0.00
	0.00	.206	.06	-.212	-.187	-.0502	.0528	0.00
	.10	.224	.09	-.245	-.149	-.0704	.0460	.10
	.20	.237	.06	-.285	-.120	-.0966	.0375	.20
	.30	.253	.01	-.315	-.152	-.1305	.0424	.30
	.40	.285	.01	-.344	-.197	-.1751	.0675	.40
	.50	.308	.04	-.347	-.229	-.2157	.0789	.50
	.60	.338	.14	-.327	-.187	-.2425	.0783	.60
5	-.60	.276	.31	-.052	-.048	.0754	.0031	-.60
	-.50	.262	.18	-.118	-.120	.0545	.0159	-.50
	-.40	.247	.15	-.152	-.163	.0415	.0226	-.40
	-.30	.234	.20	-.174	-.158	.0254	.0315	-.30
	-.20	.222	.24	-.184	-.147	.0011	.0349	-.20
	-.10	.223	.26	-.211	-.111	-.0268	.0281	-.10
	0.00	.228	.25	-.253	-.109	-.0496	.0257	0.00
	0.00	.225	.25	-.250	-.104	-.0496	.0249	0.00
	.10	.239	.27	-.269	-.116	-.0761	.0356	.10
	.20	.244	.30	-.291	-.141	-.1087	.0472	.20
	.30	.261	.31	-.318	-.169	-.1468	.0596	.30
	.40	.276	.34	-.320	-.167	-.1764	.0654	.40
	.50	.292	.40	-.331	-.137	-.1976	.0604	.50
	.60	.300	.55	-.310	-.106	-.2220	.0405	.60
10	-.60	.239	.56	-.044	-.163	.0635	.0207	-.60
	-.50	.266	.42	-.174	-.191	.0370	.0242	-.50
	-.40	.270	.39	-.220	-.169	.0172	.0276	-.40
	-.30	.267	.41	-.239	-.138	.0037	.0294	-.30
	-.20	.259	.46	-.238	-.122	-.0089	.0351	-.20
	-.10	.252	.49	-.242	-.117	-.0294	.0346	-.10
	0.00	.254	.49	-.262	-.142	-.0594	.0408	0.00
	0.00	.251	.49	-.260	-.143	-.0600	.0409	0.00
	.10	.251	.52	-.232	-.121	-.0918	.0452	.10
	.20	.254	.51	-.246	-.130	-.1213	.0483	.20
	.30	.260	.51	-.278	-.132	-.1426	.0408	.30
	.40	.266	.55	-.319	-.113	-.1612	.0244	.40
	.50	.268	.60	-.337	-.076	-.1665	-.0056	.50
	.60	.248	.77	-.322	-.039	-.1743	-.0466	.60

X-29A ROTARY BALANCE DATA

9BWCVp+10+df(-10/+25)-30r-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
15	-.60	.192	.90	.072	-.166	.0441	.0403	-.60
	-.50	.238	.70	-.088	-.184	.0177	.0460	-.50
	-.40	.258	.61	-.157	-.197	-.0025	.0406	-.40
	-.30	.270	.59	-.197	-.159	-.0171	.0348	-.30
	-.20	.274	.60	-.216	-.135	-.0304	.0282	-.20
	-.10	.275	.67	-.229	-.111	-.0459	.0295	-.10
	0.00	.270	.69	-.253	-.135	-.0634	.0329	0.00
	0.00	.270	.69	-.252	-.132	-.0633	.0321	0.00
	.10	.259	.72	-.231	-.108	-.0874	.0279	.10
	.20	.264	.72	-.239	-.099	-.1100	.0203	.20
	.30	.265	.73	-.258	-.093	-.1262	.0019	.30
	.40	.259	.74	-.258	-.052	-.1290	-.0237	.40
	.50	.237	.84	-.248	.002	-.1361	-.0621	.50
	.60	.200	1.04	-.208	.039	-.1518	-.1043	.60
20	-.60	.165	1.16	.227	-.158	.0348	.0536	-.60
	-.50	.222	.98	.003	-.167	.0076	.0623	-.50
	-.40	.249	.86	-.110	-.156	-.0114	.0537	-.40
	-.30	.262	.84	-.173	-.116	-.0205	.0397	-.30
	-.20	.250	.87	-.186	-.100	-.0367	.0305	-.20
	-.10	.243	.89	-.191	-.110	-.0489	.0133	-.10
	0.00	.248	.90	-.228	-.131	-.0555	.0022	0.00
	0.00	.246	.91	-.230	-.134	-.0571	.0018	0.00
	.10	.242	.94	-.209	-.103	-.0754	-.0034	.10
	.20	.236	.97	-.207	-.067	-.0871	-.0136	.20
	.30	.240	.97	-.182	-.028	-.0949	-.0333	.30
	.40	.247	1.01	-.202	-.021	-.1048	-.0544	.40
	.50	.230	1.13	-.168	-.018	-.1131	-.0799	.50
	.60	.178	1.37	-.057	.024	-.1301	-.1091	.60
25	-.60	.120	1.49	.476	-.203	.0250	.0570	-.60
	-.50	.191	1.25	.169	-.156	.0013	.0672	-.50
	-.40	.208	1.13	.031	-.128	-.0189	.0520	-.40
	-.30	.206	1.08	-.070	-.080	-.0368	.0366	-.30
	-.20	.193	1.14	-.111	-.050	-.0457	.0211	-.20
	-.10	.188	1.16	-.112	-.056	-.0528	.0052	-.10
	0.00	.193	1.17	-.124	-.087	-.0542	-.0020	0.00
	0.00	.192	1.18	-.126	-.088	-.0532	-.0017	0.00
	.10	.193	1.20	-.140	-.121	-.0520	-.0082	.10
	.20	.209	1.19	-.133	-.091	-.0658	-.0216	.20
	.30	.211	1.22	-.052	-.023	-.0794	-.0337	.30
	.40	.220	1.32	-.072	-.051	-.0862	-.0607	.40
	.50	.217	1.43	-.015	-.077	-.0966	-.0919	.50
	.60	.157	1.70	.091	-.066	-.1151	-.1151	.60

X-29A ROTARY BALANCE DATA

9BWCVp+10+df(-10/+25)-30r-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
30	-.60	.080	1.86	.656	-.224	.0029	.0964	-.60
	-.50	.136	1.59	.397	-.210	-.0142	.0601	-.50
	-.40	.142	1.44	.178	-.179	-.0331	.0432	-.40
	-.30	.142	1.38	.025	-.066	-.0468	.0303	-.30
	-.20	.134	1.39	-.030	-.006	-.0536	.0210	-.20
	-.10	.126	1.43	-.018	.003	-.0533	.0124	-.10
	0.00	.137	1.42	-.002	-.044	-.0523	.0054	0.00
	0.00	.134	1.41	-.003	-.042	-.0519	.0045	0.00
	.10	.140	1.45	.024	-.059	-.0469	-.0037	.10
	.20	.165	1.48	.033	-.071	-.0514	.0005	.20
	.30	.183	1.56	.029	-.081	-.0579	-.0229	.30
	.40	.182	1.64	.069	-.087	-.0710	-.0403	.40
	.50	.164	1.80	.130	-.142	-.0825	-.0600	.50
	.60	.097	2.09	.248	-.116	-.0991	-.1017	.60
35	-.60	.004	2.18	.917	-.167	-.0172	.1195	-.60
	-.50	.078	1.95	.553	-.271	-.0331	.0685	-.50
	-.40	.085	1.76	.312	-.250	-.0432	.0234	-.40
	-.30	.078	1.66	.139	-.123	-.0558	.0229	-.30
	-.20	.068	1.66	.037	.012	-.0540	.0229	-.20
	-.10	.062	1.65	.094	.065	-.0507	.0305	-.10
	0.00	.073	1.67	.132	-.013	-.0491	.0254	0.00
	0.00	.072	1.67	.135	-.006	-.0490	.0249	0.00
	.10	.078	1.70	.178	-.066	-.0464	.0213	.10
	.20	.100	1.76	.208	-.081	-.0385	.0238	.20
	.30	.117	1.87	.228	-.129	-.0420	.0121	.30
	.40	.109	2.02	.254	-.235	-.0539	-.0158	.40
	.50	.071	2.22	.361	-.230	-.0698	-.0368	.50
	.60	.026	2.47	.376	-.115	-.0847	-.0843	.60
40	-.50	.006	2.37	.752	-.073	-.0582	.1063	-.50
	-.40	.009	2.01	.486	-.235	-.0620	.0558	-.40
	-.30	-.031	1.72	.328	-.229	-.0648	.0047	-.30
	-.20	-.060	1.54	.146	-.013	-.0623	.0088	-.20
	-.10	-.060	1.46	.241	.120	-.0541	.0590	-.10
	0.00	-.039	1.74	.306	.065	-.0500	.0533	0.00
	0.00	-.040	1.73	.308	.064	-.0502	.0550	0.00
	.10	-.041	1.72	.353	-.040	-.0485	.0460	.10
	.20	-.020	1.75	.392	-.121	-.0483	.0396	.20
	.30	-.020	1.84	.439	-.177	-.0476	.0245	.30
	.40	-.029	1.97	.449	-.218	-.0475	.0035	.40
	.50	-.075	2.11	.548	-.242	-.0539	-.0295	.50

***** X-29A ROTARY BALANCE DATA *****

9BWCVp+10+df(-10/+25)-30r-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
40	-.50	-.009	2.15	.746	.006	-.0586	.1072	-.50
	-.40	.010	1.76	.529	-.149	-.0563	.0414	-.40
	-.30	-.023	1.48	.341	-.234	-.0642	-.0007	-.30
	-.20	-.051	1.30	.141	.020	-.0612	.0139	-.20
	-.10	-.043	1.23	.247	.133	-.0568	.0556	-.10
	0.00	-.019	1.48	.275	.032	-.0538	.0400	0.00
	0.00	-.022	1.49	.268	.032	-.0525	.0391	0.00
	.10	-.023	1.47	.367	-.029	-.0528	.0466	.10
	.20	-.013	1.54	.391	-.099	-.0496	.0411	.20
	.30	-.017	1.62	.447	-.166	-.0533	.0219	.30
	.40	-.041	1.72	.435	-.205	-.0517	-.0115	.40
	.50	-.049	1.88	.521	-.106	-.0555	-.0213	.50
45	-.50	-.116	1.91	.763	.103	-.0655	.1692	-.50
	-.40	-.082	1.78	.597	-.042	-.0717	.0643	-.40
	-.30	-.077	1.63	.473	-.262	-.0541	-.0247	-.30
	-.20	-.116	1.55	.237	-.055	-.0702	-.0014	-.20
	-.10	-.099	1.47	.347	.178	-.0612	.0834	-.10
	0.00	-.099	1.55	.399	.037	-.0513	.0641	0.00
	0.00	-.097	1.56	.398	.052	-.0519	.0635	0.00
	.10	-.087	1.65	.502	-.015	-.0603	.0642	.10
	.20	-.083	1.71	.498	-.124	-.0582	.0457	.20
	.30	-.089	1.87	.549	-.217	-.0570	.0275	.30
	.40	-.111	1.99	.598	-.217	-.0485	-.0209	.40
	.50	-.118	2.20	.602	-.138	-.0422	-.0422	.50
50	-.50	-.155	2.43	.807	.210	-.0656	.2011	-.50
	-.40	-.113	2.38	.616	.245	-.0699	.0875	-.40
	-.30	-.094	2.33	.445	-.031	-.0664	-.0325	-.30
	-.20	-.123	2.12	.331	-.085	-.0655	-.0356	-.20
	-.10	-.118	1.99	.368	.171	-.0622	.0955	-.10
	0.00	-.147	2.01	.481	.035	-.0652	.0708	0.00
	0.00	-.145	2.00	.479	.041	-.0647	.0689	0.00
	.10	-.159	2.08	.596	.017	-.0752	.0538	.10
	.20	-.152	2.18	.621	-.115	-.0635	.0182	.20
	.30	-.146	2.34	.672	-.269	-.0491	-.0080	.30
	.40	-.154	2.53	.693	-.251	-.0408	-.0310	.40
	.50	-.150	2.53	.391	-.328	-.0518	-.1780	.50
55	-.50	-.176	2.50	.523	.237	-.0718	.1971	-.50
	-.40	-.148	2.41	.488	.268	-.0720	.1055	-.40
	-.30	-.151	2.36	.442	.121	-.0707	.0054	-.30
	-.20	-.160	2.28	.366	-.054	-.0595	-.0783	-.20
	-.10	-.169	2.12	.375	.170	-.0558	.0856	-.10
	0.00	-.201	2.15	.556	.057	-.0490	.0542	0.00
	0.00	-.200	2.18	.551	.067	-.0497	.0570	0.00
	.10	-.208	2.24	.633	-.021	-.0488	.0076	.10
	.20	-.198	2.34	.668	-.130	-.0569	-.0342	.20
	.30	-.197	2.52	.768	-.202	-.0620	-.0525	.30
	.40	-.182	2.62	.614	-.305	-.0490	-.0827	.40
	.50	-.172	2.57	.163	-.473	-.0437	-.2599	.50

X-29A ROTARY BALANCE DATA

9BWCVp+10+df(-10/+25)-30r-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
60	-.50	-.162	2.57	.235	.150	-.0773	.1636	-.50
	-.40	-.182	2.50	.447	.180	-.0741	.1099	-.40
	-.30	-.181	2.36	.408	.168	-.0594	.0252	-.30
	-.20	-.204	2.32	.357	.049	-.0624	-.0549	-.20
	-.10	-.226	2.20	.353	.150	-.0484	.0638	-.10
	0.00	-.216	2.20	.408	.025	-.0464	.0145	0.00
	0.00	-.227	2.22	.418	.024	-.0457	.0094	0.00
	.10	-.215	2.23	.352	-.047	-.0515	-.0621	.10
	.20	-.245	2.39	.500	-.156	-.0586	-.1059	.20
	.30	-.254	2.57	.531	-.284	-.0638	-.1677	.30
	.40	-.238	2.62	.266	-.389	-.0556	-.2207	.40
	.50	-.178	2.68	-.039	-.500	-.0333	-.2609	.50
65	-.50	-.246	2.72	.245	.133	-.0818	.1555	-.50
	-.40	-.216	2.57	.253	.086	-.0720	.0789	-.40
	-.30	-.211	2.43	.297	.064	-.0497	.0139	-.30
	-.20	-.224	2.31	.301	.027	-.0545	-.0321	-.20
	-.10	-.209	2.27	.247	.091	-.0441	.0128	-.10
	0.00	-.196	2.21	.202	-.001	-.0487	-.0129	0.00
	0.00	-.198	2.19	.196	-.008	-.0481	-.0114	0.00
	.10	-.213	2.26	.227	-.067	-.0521	-.0521	.10
	.20	-.241	2.38	.242	-.170	-.0545	-.1248	.20
	.30	-.274	2.57	.250	-.306	-.0515	-.1772	.30
	.40	-.257	2.67	.025	-.468	-.0369	-.2173	.40
	.50	-.244	2.76	-.229	-.465	-.0296	-.2332	.50
70	-.50	-.272	2.88	.208	.186	-.0864	.1651	-.50
	-.40	-.247	2.64	.111	.154	-.0641	.0737	-.40
	-.30	-.254	2.49	.195	.025	-.0494	.0089	-.30
	-.20	-.247	2.38	.142	-.042	-.0436	-.0571	-.20
	-.10	-.247	2.32	.218	.048	-.0420	-.0061	-.10
	0.00	-.248	2.27	.151	.004	-.0450	-.0125	0.00
	0.00	-.244	2.27	.151	.004	-.0460	-.0170	0.00
	.10	-.252	2.30	.146	-.059	-.0486	-.0453	.10
	.20	-.275	2.44	.156	-.145	-.0531	-.0888	.20
	.30	-.325	2.64	.193	-.254	-.0491	-.1552	.30
	.40	-.316	2.78	-.047	-.410	-.0326	-.2051	.40
	.50	-.308	2.90	-.347	-.377	-.0239	-.2242	.50
75	-.50	-.273	2.98	.116	.309	-.0879	.1722	-.50
	-.40	-.293	2.72	.082	.188	-.0636	.0810	-.40
	-.30	-.294	2.53	.083	.031	-.0530	.0201	-.30
	-.20	-.277	2.40	.066	-.034	-.0468	-.0489	-.20
	-.10	-.278	2.34	.182	.034	-.0411	-.0127	-.10
	0.00	-.287	2.29	.110	.000	-.0435	-.0053	0.00
	0.00	-.284	2.31	.110	-.005	-.0434	-.0043	0.00
	.10	-.284	2.33	.080	-.051	-.0467	-.0298	.10
	.20	-.299	2.42	.063	-.151	-.0486	-.0721	.20
	.30	-.338	2.63	.019	-.197	-.0471	-.1153	.30
	.40	-.359	2.83	-.143	-.305	-.0342	-.1614	.40
	.50	-.358	3.08	-.418	-.199	-.0185	-.2134	.50

X-29A ROTARY BALANCE DATA

9BWCVp+10+df(-10/+25)-30r-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
80	-.50	-.311	3.01	.025	.356	-.0911	.1718	-.50
	-.40	-.327	2.82	.039	.199	-.0721	.0857	-.40
	-.30	-.326	2.60	.041	.044	-.0578	.0236	-.30
	-.20	-.299	2.42	-.010	-.038	-.0490	-.0337	-.20
	-.10	-.303	2.35	.069	.023	-.0436	-.0177	-.10
	0.00	-.315	2.31	.037	-.015	-.0431	.0020	0.00
	0.00	-.318	2.33	.033	-.015	-.0415	.0021	0.00
	.10	-.315	2.36	.011	-.035	-.0436	-.0214	.10
	.20	-.323	2.44	-.049	-.137	-.0437	-.0620	.20
	.30	-.341	2.62	-.104	-.227	-.0414	-.1107	.30
	.40	-.352	2.85	-.306	-.270	-.0313	-.1483	.40
	.50	-.358	3.18	-.447	-.121	-.0077	-.2080	.50
85	-.50	-.311	3.08	.060	.296	-.1021	.1746	-.50
	-.40	-.335	2.84	.053	.180	-.0809	.0884	-.40
	-.30	-.359	2.64	.014	.026	-.0631	.0259	-.30
	-.20	-.338	2.48	-.036	-.013	-.0536	-.0183	-.20
	-.10	-.326	2.39	-.023	.023	-.0461	-.0235	-.10
	0.00	-.344	2.34	-.055	.002	-.0443	.0068	0.00
	0.00	-.346	2.35	-.060	-.002	-.0412	.0046	0.00
	.10	-.352	2.38	-.072	-.041	-.0399	-.0167	.10
	.20	-.358	2.49	-.114	-.119	-.0395	-.0468	.20
	.30	-.360	2.68	-.190	-.192	-.0361	-.0894	.30
	.40	-.339	2.97	-.301	-.177	-.0288	-.1355	.40
	.50	-.316	3.19	-.384	-.170	.0011	-.2036	.50
90	-.50	-.302	3.04	.049	.274	-.1074	.1846	-.50
	-.40	-.338	2.83	-.000	.166	-.0877	.0991	-.40
	-.30	-.366	2.62	-.031	.040	-.0695	.0329	-.30
	-.20	-.349	2.44	-.086	-.018	-.0577	-.0111	-.20
	-.10	-.334	2.35	-.119	.037	-.0498	-.0247	-.10
	0.00	-.360	2.34	-.097	.012	-.0404	.0003	0.00
	0.00	-.352	2.31	-.116	.012	-.0406	.0000	0.00
	.10	-.355	2.35	-.131	-.036	-.0357	-.0135	.10
	.20	-.369	2.46	-.177	-.106	-.0334	-.0421	.20
	.30	-.367	2.66	-.239	-.161	-.0271	-.0772	.30
	.40	-.338	2.91	-.325	-.205	-.0139	-.1314	.40
	.50	-.294	3.11	-.409	-.221	.0151	-.2006	.50

***** X-29A ROTARY BALANCE DATA *****

9BWCV-df(+25/-10)+30r-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.60	.331	.08	-.211	.083	.2242	-.0519	-.60
	-.50	.300	.01	-.238	.061	.2028	-.0510	-.50
	-.40	.274	.04	-.257	.046	.1761	-.0464	-.40
	-.30	.252	.07	-.259	.037	.1457	-.0413	-.30
	-.20	.233	.10	-.253	.015	.1092	-.0339	-.20
	-.10	.223	.16	-.273	.012	.0748	-.0295	-.10
	0.00	.215	.16	-.295	-.011	.0458	-.0221	0.00
	0.00	.212	.17	-.294	-.012	.0445	-.0207	0.00
	.10	.218	.15	-.304	-.002	.0196	-.0115	.10
	.20	.216	.10	-.288	-.004	-.0075	-.0055	.20
	.30	.219	.06	-.290	.015	-.0379	-.0024	.30
	.40	.229	.05	-.316	-.007	-.0696	.0046	.40
	.50	.243	.07	-.325	-.022	-.0998	.0172	.50
	.60	.259	.15	-.296	-.042	-.1155	.0301	.60
5	-.60	.298	.39	-.264	-.007	.1961	-.0295	-.60
	-.50	.286	.30	-.306	-.018	.1763	-.0301	-.50
	-.40	.256	.31	-.285	-.020	.1594	-.0242	-.40
	-.30	.241	.36	-.284	-.007	.1418	-.0227	-.30
	-.20	.233	.37	-.282	-.020	.1154	-.0249	-.20
	-.10	.229	.38	-.283	-.009	.0851	-.0257	-.10
	0.00	.237	.35	-.294	-.014	.0573	-.0256	0.00
	0.00	.238	.35	-.295	-.008	.0571	-.0252	0.00
	.10	.233	.37	-.292	.022	.0277	-.0216	.10
	.20	.228	.37	-.316	.025	-.0046	-.0170	.20
	.30	.228	.36	-.331	.025	-.0415	-.0137	.30
	.40	.227	.33	-.321	.017	-.0759	-.0122	.40
	.50	.243	.33	-.300	-.011	-.0931	.0094	.50
	.60	.237	.41	-.236	-.038	-.1012	.0173	.60
10	-.60	.253	.66	-.260	-.094	.1789	.0029	-.60
	-.50	.281	.50	-.352	-.044	.1554	-.0118	-.50
	-.40	.279	.49	-.357	-.034	.1374	-.0104	-.40
	-.30	.258	.52	-.324	-.031	.1229	-.0109	-.30
	-.20	.250	.59	-.306	-.006	.1086	-.0139	-.20
	-.10	.236	.63	-.289	.012	.0864	-.0181	-.10
	0.00	.232	.61	-.291	.004	.0606	-.0259	0.00
	0.00	.232	.61	-.292	.009	.0599	-.0254	0.00
	.10	.229	.63	-.283	.025	.0295	-.0311	.10
	.20	.236	.62	-.303	.026	-.0010	-.0360	.20
	.30	.246	.60	-.316	.037	-.0301	-.0359	.30
	.40	.253	.56	-.307	.040	-.0481	-.0278	.40
	.50	.246	.54	-.284	.020	-.0560	-.0268	.50
	.60	.216	.67	-.199	.024	-.0756	-.0395	.60

X-29A ROTARY BALANCE DATA

9BWCV-df(+25/-10)+30r-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
15	-.60	.198	.97	-.129	-.175	.1527	.0512	-.60
	-.50	.251	.80	-.290	-.121	.1254	.0412	-.50
	-.40	.273	.73	-.348	-.069	.1075	.0192	-.40
	-.30	.280	.71	-.369	-.029	.0955	.0032	-.30
	-.20	.278	.74	-.360	.002	.0848	-.0084	-.20
	-.10	.256	.81	-.312	.029	.0737	-.0158	-.10
	0.00	.243	.84	-.308	.009	.0549	-.0232	0.00
	0.00	.236	.83	-.302	.009	.0530	-.0231	0.00
	.10	.237	.85	-.287	.020	.0307	-.0354	.10
	.20	.257	.81	-.312	.041	.0092	-.0461	.20
	.30	.262	.75	-.292	.059	-.0028	-.0480	.30
	.40	.253	.73	-.257	.063	-.0090	-.0530	.40
	.50	.223	.81	-.187	.076	-.0240	-.0671	.50
	.60	.163	1.01	-.060	.105	-.0445	-.0793	.60
20	-.60	.172	1.30	-.014	-.163	.1337	.0540	-.60
	-.50	.225	1.09	-.229	-.101	.1005	.0583	-.50
	-.40	.250	1.00	-.311	-.061	.0853	.0462	-.40
	-.30	.255	.95	-.335	-.019	.0735	.0248	-.30
	-.20	.252	.96	-.330	.003	.0646	.0055	-.20
	-.10	.239	.99	-.316	-.011	.0524	-.0096	-.10
	0.00	.253	1.01	-.353	-.001	.0430	-.0212	0.00
	0.00	.249	1.02	-.353	.003	.0426	-.0209	0.00
	.10	.237	1.03	-.302	.050	.0256	-.0309	.10
	.20	.241	.99	-.257	.053	.0213	-.0422	.20
	.30	.238	.94	-.229	.052	.0190	-.0599	.30
	.40	.226	.98	-.189	.059	.0079	-.0677	.40
	.50	.200	1.07	-.057	.091	-.0045	-.0662	.50
	.60	.134	1.31	.129	.088	-.0356	-.0630	.60
25	-.60	.126	1.69	.168	-.138	.1211	.0477	-.60
	-.50	.192	1.45	-.043	-.121	.0892	.0384	-.50
	-.40	.224	1.30	-.216	-.024	.0628	.0390	-.40
	-.30	.203	1.27	-.264	-.010	.0532	.0306	-.30
	-.20	.194	1.21	-.256	.014	.0419	.0077	-.20
	-.10	.186	1.23	-.244	.016	.0341	-.0094	-.10
	0.00	.192	1.23	-.264	.005	.0284	-.0177	0.00
	0.00	.192	1.23	-.262	.005	.0298	-.0170	0.00
	.10	.184	1.24	-.215	.015	.0319	-.0241	.10
	.20	.194	1.23	-.199	-.015	.0333	-.0305	.20
	.30	.201	1.24	-.151	-.004	.0228	-.0431	.30
	.40	.193	1.26	-.025	.061	.0205	-.0501	.40
	.50	.168	1.45	.113	.036	.0003	-.0386	.50
	.60	.092	1.67	.309	.021	-.0261	-.0457	.60

X-29A ROTARY BALANCE DATA

9BWCV-df(+25/-10)+30r-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
30	-.60	.090	2.10	.262	-.049	.0928	.0580	-.60
	-.50	.155	1.82	.071	-.045	.0673	.0256	-.50
	-.40	.167	1.65	-.022	-.047	.0455	.0180	-.40
	-.30	.147	1.53	-.121	-.010	.0302	.0131	-.30
	-.20	.130	1.48	-.115	-.009	.0250	-.0022	-.20
	-.10	.116	1.46	-.137	-.005	.0185	-.0084	-.10
	0.00	.119	1.45	-.170	.018	.0224	-.0100	0.00
	0.00	.119	1.46	-.170	.007	.0212	-.0094	0.00
	.10	.112	1.49	-.117	.030	.0262	-.0127	.10
	.20	.126	1.47	-.059	.014	.0335	-.0182	.20
	.30	.149	1.48	.009	.005	.0316	-.0207	.30
	.40	.150	1.58	.136	.041	.0243	-.0226	.40
	.50	.116	1.76	.295	.056	.0123	-.0462	.50
	.60	.034	2.05	.515	.042	-.0031	-.0769	.60
35	-.60	-.031	2.53	.493	-.059	.0687	.0431	-.60
	-.50	.056	2.22	.300	-.038	.0509	.0129	-.50
	-.40	.089	1.99	.170	-.033	.0351	.0019	-.40
	-.30	.090	1.84	.102	-.055	.0203	.0007	-.30
	-.20	.072	1.73	.082	-.064	.0203	-.0211	-.20
	-.10	.057	1.68	-.018	-.027	.0174	-.0136	-.10
	0.00	.066	1.65	-.073	.006	.0199	-.0016	0.00
	0.00	.064	1.66	-.074	.008	.0209	-.0030	0.00
	.10	.052	1.67	.007	.030	.0318	.0133	.10
	.20	.063	1.71	.124	.054	.0317	.0062	.20
	.30	.083	1.79	.174	-.024	.0333	-.0065	.30
	.40	.082	1.90	.300	-.013	.0332	-.0313	.40
	.50	.046	2.09	.503	-.001	.0197	-.0535	.50
40	-.50	-.023	2.46	.457	.116	.0409	.0116	-.50
	-.40	.009	2.26	.317	.100	.0238	-.0051	-.40
	-.30	.026	2.11	.260	.022	.0188	-.0212	-.30
	-.20	.009	1.97	.234	-.077	.0184	-.0388	-.20
	-.10	-.014	1.89	.114	-.110	.0159	-.0367	-.10
	0.00	-.019	1.87	.019	-.028	.0295	.0045	0.00
	0.00	-.018	1.86	.018	-.030	.0271	.0021	0.00
	.10	-.016	1.89	.115	.057	.0318	.0417	.10
	.20	-.002	1.98	.251	.081	.0298	.0297	.20
	.30	.013	2.07	.322	-.031	.0451	-.0051	.30
	.40	.011	2.19	.432	-.027	.0429	-.0461	.40
	.50	-.028	2.41	.612	.005	.0356	-.0917	.50
45	-.50	-.106	2.74	.598	.338	.0264	.0507	-.50
	-.40	-.066	2.54	.457	.224	.0187	.0173	-.40
	-.30	-.032	2.41	.407	.059	.0140	-.0347	-.30
	-.20	-.044	2.24	.366	-.046	.0305	-.0665	-.20
	-.10	-.050	2.12	.262	-.133	.0270	-.0697	-.10
	0.00	-.064	2.08	.121	.017	.0315	.0276	0.00
	0.00	-.065	2.09	.116	-.008	.0316	.0119	0.00
	.10	-.066	2.17	.265	.101	.0301	.0715	.10
	.20	-.053	2.26	.350	-.012	.0311	.0589	.20
	.30	-.051	2.39	.467	-.091	.0477	-.0032	.30
	.40	-.064	2.52	.574	-.142	.0595	-.0728	.40
	.50	-.110	2.75	.736	-.176	.0583	-.1562	.50

X-29A ROTARY BALANCE DATA

9BWCV-df(+25/-10)+30r-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
50	-.50	-.197	2.92	.643	.368	.0255	.1370	-.50
	-.40	-.167	2.71	.620	.287	.0095	.0727	-.40
	-.30	-.130	2.58	.580	.162	.0110	-.0071	-.30
	-.20	-.129	2.46	.491	.034	.0260	-.0618	-.20
	-.10	-.110	2.32	.360	-.124	.0434	-.1141	-.10
	0.00	-.129	2.27	.207	.056	.0312	.0453	0.00
	0.00	-.129	2.24	.218	.026	.0357	.0412	0.00
	.10	-.124	2.31	.353	.064	.0108	.1123	.10
	.20	-.131	2.46	.498	-.102	.0221	.0722	.20
	.30	-.134	2.61	.599	-.214	.0489	-.0100	.30
	.40	-.162	2.78	.729	-.210	.0679	-.0927	.40
	.50	-.215	2.91	.856	-.182	.0576	-.1750	.50
55	-.60	-.252	3.03	-.085	.654	.0256	.2395	-.60
	-.50	-.261	2.94	.521	.526	.0345	.2511	-.50
	-.40	-.227	2.85	.662	.351	.0393	.1260	-.40
	-.30	-.208	2.73	.700	.195	.0299	.0373	-.30
	-.20	-.198	2.61	.606	.114	.0243	-.0110	-.20
	-.10	-.161	2.42	.393	-.095	.0434	-.1019	-.10
	0.00	-.169	2.36	.273	.049	.0154	.0443	0.00
	0.00	-.169	2.35	.265	-.021	.0159	.0290	0.00
	.10	-.170	2.43	.369	.008	.0082	.0894	.10
	.20	-.191	2.61	.598	-.138	.0198	.0378	.20
	.30	-.222	2.75	.753	-.233	.0415	-.0371	.30
	.40	-.235	2.89	.770	-.249	.0433	-.1265	.40
	.50	-.272	2.98	.491	-.360	.0580	-.3198	.50
	.60	-.264	3.13	.065	-.434	.0657	-.2983	.60
60	-.60	-.182	3.14	-.153	.585	.0189	.2356	-.60
	-.50	-.188	3.02	.117	.515	.0105	.2275	-.50
	-.40	-.260	2.99	.575	.434	.0357	.2082	-.40
	-.30	-.258	2.86	.623	.246	.0428	.1086	-.30
	-.20	-.261	2.66	.460	.086	.0381	.0444	-.20
	-.10	-.240	2.50	.364	-.032	.0349	-.0395	-.10
	0.00	-.208	2.45	.306	-.027	.0201	.0347	0.00
	0.00	-.211	2.45	.322	.027	.0185	.0477	0.00
	.10	-.235	2.50	.345	-.027	.0162	.0431	.10
	.20	-.255	2.67	.462	-.139	.0227	-.0239	.20
	.30	-.256	2.88	.632	-.272	.0291	-.1038	.30
	.40	-.250	2.98	.464	-.326	.0442	-.2233	.40
	.50	-.201	3.07	.254	-.333	.0716	-.2525	.50
	.60	-.214	3.19	.009	-.261	.0687	-.2768	.60
65	-.60	-.288	3.34	-.087	.462	.0078	.2485	-.60
	-.50	-.274	3.17	.079	.340	.0068	.2138	-.50
	-.40	-.285	3.07	.309	.313	.0213	.1865	-.40
	-.30	-.273	2.88	.302	.201	.0327	.1378	-.30
	-.20	-.225	2.65	.246	.056	.0370	.0386	-.20
	-.10	-.218	2.53	.196	-.044	.0346	-.0326	-.10
	0.00	-.233	2.51	.312	-.045	.0233	.0141	0.00
	0.00	-.227	2.51	.305	-.058	.0268	.0106	0.00
	.10	-.223	2.54	.191	-.058	.0165	.0384	.10
	.20	-.223	2.66	.248	-.177	.0142	-.0216	.20
	.30	-.255	2.89	.343	-.224	.0231	-.0993	.30
	.40	-.289	3.12	.376	-.243	.0485	-.1836	.40
	.50	-.285	3.20	.207	-.179	.0698	-.2223	.50
	.60	-.305	3.38	.058	-.216	.0776	-.2882	.60

X-29A ROTARY BALANCE DATA

9BWCV-df(+25/-10)+30r-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
70	-.60	-.327	3.49	-.085	.368	-.0083	.2772	-.60
	-.50	-.302	3.25	-.059	.280	-.0034	.2033	-.50
	-.40	-.320	3.13	.155	.262	.0130	.1662	-.40
	-.30	-.298	2.89	.182	.183	.0284	.1189	-.30
	-.20	-.276	2.71	.152	.036	.0315	.0246	-.20
	-.10	-.271	2.59	.120	-.060	.0300	-.0356	-.10
	0.00	-.287	2.60	.258	-.057	.0212	.0074	0.00
	0.00	-.277	2.59	.251	-.062	.0237	-.0013	0.00
	.10	-.275	2.60	.120	-.037	.0159	.0428	.10
	.20	-.275	2.73	.172	-.141	.0154	-.0096	.20
	.30	-.284	2.91	.224	-.220	.0227	-.0744	.30
	.40	-.306	3.14	.219	-.219	.0529	-.1433	.40
	.50	-.298	3.25	.049	-.190	.0764	-.2140	.50
	.60	-.321	3.51	.034	-.205	.0902	-.3058	.60
75	-.60	-.400	3.60	-.198	.347	-.0250	.3065	-.60
	-.50	-.369	3.36	-.138	.252	-.0123	.1979	-.50
	-.40	-.343	3.14	-.014	.216	.0056	.1298	-.40
	-.30	-.311	2.88	.062	.143	.0224	.0850	-.30
	-.20	-.301	2.70	.072	.016	.0248	.0090	-.20
	-.10	-.300	2.61	.080	-.067	.0237	-.0357	-.10
	0.00	-.298	2.61	.214	-.067	.0208	.0041	0.00
	0.00	-.306	2.66	.204	-.091	.0202	.0035	0.00
	.10	-.299	2.67	.085	-.044	.0165	.0520	.10
	.20	-.299	2.72	.089	-.122	.0177	.0048	.20
	.30	-.307	2.91	.088	-.203	.0260	-.0601	.30
	.40	-.317	3.09	-.012	-.269	.0517	-.1339	.40
	.50	-.362	3.37	-.039	-.179	.0812	-.2145	.50
	.60	-.377	3.57	-.092	-.213	.1022	-.3270	.60
80	-.60	-.387	3.65	-.332	.524	-.0400	.3194	-.60
	-.50	-.441	3.46	-.265	.299	-.0191	.1944	-.50
	-.40	-.360	3.21	-.211	.240	.0045	.1129	-.40
	-.30	-.324	2.93	-.077	.123	.0119	.0721	-.30
	-.20	-.332	2.78	-.027	.002	.0180	.0024	-.20
	-.10	-.323	2.66	.007	-.068	.0178	-.0402	-.10
	0.00	-.312	2.66	.095	-.049	.0185	.0021	0.00
	0.00	-.319	2.68	.098	-.062	.0173	.0036	0.00
	.10	-.311	2.66	-.005	-.035	.0163	.0503	.10
	.20	-.333	2.78	-.015	-.096	.0187	.0035	.20
	.30	-.325	2.96	-.042	-.198	.0299	-.0658	.30
	.40	-.349	3.20	-.130	-.269	.0466	-.1179	.40
	.50	-.394	3.46	-.162	-.293	.0802	-.2070	.50
	.60	-.358	3.65	-.222	-.389	.1080	-.3291	.60

X-29A ROTARY BALANCE DATA

9BWCV-df(+25/-10)+30r-60c+30bf BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
85	-.60	-.221	3.64	-.249	.478	-.0560	.3149	-.60
	-.50	-.306	3.43	-.203	.377	-.0316	.1949	-.50
	-.40	-.389	3.24	-.174	.185	-.0053	.1023	-.40
	-.30	-.375	2.99	-.115	.066	.0036	.0465	-.30
	-.20	-.367	2.80	-.089	-.014	.0111	-.0019	-.20
	-.10	-.351	2.68	-.088	-.074	.0123	-.0369	-.10
	0.00	-.333	2.65	-.038	-.052	.0147	.0035	0.00
	0.00	-.334	2.65	-.043	-.071	.0148	.0027	0.00
	.10	-.345	2.67	-.089	-.041	.0168	.0453	.10
	.20	-.361	2.78	-.073	-.097	.0194	.0057	.20
	.30	-.374	2.99	-.087	-.159	.0328	-.0418	.30
	.40	-.377	3.23	-.112	-.258	.0547	-.1130	.40
	.50	-.310	3.44	-.141	-.441	.0812	-.2019	.50
	.60	-.136	3.63	-.143	-.362	.1122	-.3080	.60
90	-.60	-.146	3.61	-.232	.492	-.0642	.2952	-.60
	-.50	-.259	3.39	-.196	.365	-.0430	.1906	-.50
	-.40	-.343	3.15	-.182	.204	-.0195	.1050	-.40
	-.30	-.394	2.92	-.148	.069	-.0055	.0443	-.30
	-.20	-.386	2.74	-.126	-.005	.0035	.0057	-.20
	-.10	-.372	2.62	-.137	-.039	.0065	-.0254	-.10
	0.00	-.360	2.60	-.120	-.051	.0120	-.0032	0.00
	0.00	-.360	2.61	-.123	-.069	.0144	.0033	0.00
	.10	-.364	2.61	-.150	-.080	.0202	.0363	.10
	.20	-.375	2.71	-.129	-.134	.0288	-.0053	.20
	.30	-.382	2.91	-.124	-.167	.0407	-.0497	.30
	.40	-.356	3.14	-.129	-.283	.0667	-.1195	.40
	.50	-.229	3.38	-.117	-.338	.0919	-.2029	.50
	.60	-.082	3.57	-.114	-.385	.1187	-.3018	.60

***** X-29A ROTARY BALANCE DATA *****

9BWCVp+10-df(+25/-10)+30r-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.60	.353	-.07	-.156	.101	.2092	-.0745	-.60
	-.50	.320	-.12	-.236	.010	.1904	-.0542	-.50
	-.40	.281	-.06	-.275	-.056	.1710	-.0341	-.40
	-.30	.246	.01	-.281	-.099	.1437	-.0171	-.30
	-.20	.231	.06	-.292	-.117	.1119	-.0123	-.20
	-.10	.223	.11	-.296	-.118	.0795	-.0080	-.10
	0.00	.210	.12	-.311	-.154	.0527	-.0038	0.00
	0.00	.209	.12	-.311	-.151	.0526	-.0040	0.00
	.10	.207	.15	-.308	-.119	.0239	-.0029	.10
	.20	.219	.09	-.361	-.103	-.0035	-.0005	.20
	.30	.228	.05	-.400	-.105	-.0317	.0028	.30
	.40	.253	.05	-.458	-.106	-.0609	.0158	.40
	.50	.266	.16	-.500	-.074	-.0893	.0112	.50
	.60	.283	.27	-.499	-.037	-.1165	.0020	.60
5	-.60	.318	.32	-.177	.038	.1882	-.0361	-.60
	-.50	.302	.20	-.270	-.038	.1671	-.0278	-.50
	-.40	.271	.22	-.301	-.111	.1500	-.0236	-.40
	-.30	.249	.27	-.302	-.136	.1297	-.0191	-.30
	-.20	.234	.32	-.304	-.139	.1102	-.0149	-.20
	-.10	.234	.36	-.346	-.128	.0832	-.0070	-.10
	0.00	.236	.37	-.380	-.133	.0578	-.0035	0.00
	0.00	.233	.36	-.379	-.133	.0571	-.0027	0.00
	.10	.246	.37	-.401	-.119	.0317	.0013	.10
	.20	.248	.36	-.428	-.131	.0009	.0071	.20
	.30	.250	.35	-.437	-.118	-.0336	.0021	.30
	.40	.257	.38	-.449	-.070	-.0671	-.0104	.40
	.50	.259	.46	-.443	-.018	-.0919	-.0275	.50
	.60	.256	.64	-.408	.040	-.1005	-.0409	.60
10	-.60	.268	.57	-.128	-.057	.1741	-.0175	-.60
	-.50	.284	.42	-.269	-.113	.1433	-.0071	-.50
	-.40	.282	.43	-.349	-.139	.1178	.0013	-.40
	-.30	.282	.48	-.387	-.138	.1013	.0017	-.30
	-.20	.275	.53	-.394	-.132	.0871	.0024	-.20
	-.10	.268	.59	-.400	-.121	.0769	.0015	-.10
	0.00	.264	.59	-.419	-.146	.0561	.0035	0.00
	0.00	.263	.59	-.420	-.138	.0557	.0032	0.00
	.10	.259	.62	-.408	-.113	.0280	-.0011	.10
	.20	.256	.62	-.411	-.096	-.0010	-.0134	.20
	.30	.248	.64	-.403	-.065	-.0293	-.0315	.30
	.40	.247	.65	-.386	-.011	-.0556	-.0503	.40
	.50	.245	.72	-.364	.034	-.0743	-.0719	.50
	.60	.223	.83	-.298	.080	-.0738	-.1009	.60

X-29A ROTARY BALANCE DATA

9BWCVp+10-df(+25/-10)+30r-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
15	-.60	.221	.85	-.028	-.070	.1517	.0140	-.60
	-.50	.259	.69	-.209	-.112	.1188	.0176	-.50
	-.40	.276	.60	-.286	-.107	.0928	.0154	-.40
	-.30	.274	.61	-.344	-.139	.0765	.0107	-.30
	-.20	.279	.65	-.379	-.124	.0650	.0012	-.20
	-.10	.282	.69	-.401	-.126	.0509	-.0033	-.10
	0.00	.273	.74	-.407	-.124	.0405	-.0104	0.00
	0.00	.271	.73	-.403	-.123	.0391	-.0099	0.00
	.10	.253	.82	-.373	-.079	.0228	-.0232	.10
	.20	.244	.85	-.354	-.058	-.0020	-.0406	.20
	.30	.239	.86	-.315	-.022	-.0234	-.0598	.30
	.40	.239	.88	-.283	.028	-.0355	-.0772	.40
	.50	.225	.89	-.227	.047	-.0346	-.0951	.50
	.60	.179	1.05	-.146	.076	-.0487	-.1239	.60
20	-.60	.304	.85	-.304	-.040	.1396	.0304	-.60
	-.50	.297	.77	-.388	-.081	.1082	.0304	-.50
	-.40	.280	.79	-.422	-.098	.0843	.0257	-.40
	-.30	.260	.82	-.415	-.094	.0689	.0159	-.30
	-.20	.230	.91	-.396	-.084	.0558	.0104	-.20
	-.10	.213	.96	-.365	-.112	.0426	-.0092	-.10
	0.00	.213	.99	-.374	-.130	.0289	-.0256	0.00
	0.00	.212	.99	-.372	-.126	.0290	-.0247	0.00
	.10	.196	1.07	-.340	-.076	.0107	-.0416	.10
	.20	.200	1.10	-.334	-.035	-.0007	-.0586	.20
	.30	.217	1.08	-.328	.026	-.0154	-.0727	.30
	.40	.248	1.00	-.346	.065	-.0083	-.0893	.40
	.50	.264	.99	-.366	.080	-.0178	-.1071	.50
	.60	.266	1.09	-.377	.134	-.0316	-.1367	.60
25	-.60	.159	1.51	.250	-.114	.1170	.0355	-.60
	-.50	.210	1.28	-.043	-.118	.0888	.0421	-.50
	-.40	.218	1.14	-.160	-.071	.0648	.0343	-.40
	-.30	.206	1.08	-.236	-.046	.0444	.0193	-.30
	-.20	.190	1.12	-.244	-.046	.0358	.0018	-.20
	-.10	.175	1.18	-.227	-.045	.0221	-.0160	-.10
	0.00	.174	1.22	-.230	-.067	.0145	-.0315	0.00
	0.00	.174	1.22	-.230	-.071	.0123	-.0314	0.00
	.10	.171	1.25	-.190	-.060	.0018	-.0447	.10
	.20	.188	1.27	-.141	-.011	-.0040	-.0531	.20
	.30	.195	1.27	-.053	-.014	.0084	-.0632	.30
	.40	.198	1.33	.005	-.023	.0044	-.0740	.40
	.50	.183	1.43	.087	-.021	-.0027	-.0954	.50
	.60	.110	1.72	.226	.035	-.0179	-.1264	.60

X-29A ROTARY BALANCE DATA

9BWCVp+10-df(+25/-10)+30r-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
30	-.60	.101	1.88	.449	-.086	.0937	.0412	-.60
	-.50	.148	1.60	.176	-.142	.0711	.0218	-.50
	-.40	.141	1.45	-.020	-.171	.0466	.0194	-.40
	-.30	.135	1.39	-.118	-.067	.0258	.0125	-.30
	-.20	.122	1.39	-.145	.000	.0151	.0063	-.20
	-.10	.113	1.44	-.105	-.012	.0088	-.0059	-.10
	0.00	.117	1.46	-.071	-.024	.0048	-.0120	0.00
	0.00	.119	1.46	-.076	-.037	.0054	-.0115	0.00
	.10	.118	1.49	-.028	-.036	.0114	-.0207	.10
	.20	.140	1.47	.056	-.009	.0123	-.0168	.20
	.30	.152	1.50	.100	-.059	.0134	-.0378	.30
	.40	.158	1.60	.162	-.049	.0100	-.0548	.40
	.50	.138	1.75	.264	-.019	.0061	-.0858	.50
	.60	.062	2.06	.425	-.005	.0030	-.1504	.60
35	-.60	-.013	2.27	.672	-.047	.0629	.0659	-.60
	-.50	.074	2.03	.386	-.142	.0451	.0202	-.50
	-.40	.077	1.84	.173	-.231	.0274	-.0101	-.40
	-.30	.067	1.69	.042	-.159	.0122	-.0103	-.30
	-.20	.060	1.66	-.042	-.007	-.0012	.0121	-.20
	-.10	.052	1.67	.028	.043	.0042	.0263	-.10
	0.00	.058	1.66	.089	.007	.0124	.0171	0.00
	0.00	.057	1.67	.087	.002	.0142	.0151	0.00
	.10	.055	1.68	.146	-.044	.0143	.0148	.10
	.20	.066	1.74	.236	-.056	.0156	.0111	.20
	.30	.076	1.82	.307	-.053	.0168	-.0161	.30
	.40	.077	1.97	.367	-.068	.0222	-.0665	.40
	.50	.048	2.16	.456	-.072	.0244	-.1027	.50
	.60	-.035	2.43	.572	.109	.0082	-.1679	.60
40	-.50	-.019	2.45	.592	.028	.0109	.0327	-.50
	-.40	-.011	2.07	.392	-.148	.0011	-.0172	-.40
	-.30	-.037	1.73	.222	-.222	-.0080	-.0337	-.30
	-.20	-.061	1.47	.091	-.033	-.0108	-.0048	-.20
	-.10	-.071	1.40	.168	.104	.0093	.0541	-.10
	0.00	-.047	1.69	.236	.025	.0107	.0482	0.00
	0.00	-.052	1.69	.239	.031	.0094	.0498	0.00
	.10	-.059	1.67	.302	-.048	.0099	.0369	.10
	.20	-.052	1.72	.348	-.097	.0077	.0264	.20
	.30	-.046	1.79	.458	-.159	.0041	.0090	.30
	.40	-.066	1.88	.534	-.163	.0115	-.0302	.40
	.50	-.103	1.99	.645	-.129	.0222	-.1058	.50
45	-.50	-.130	2.23	.656	.154	-.0006	.0694	-.50
	-.40	-.097	2.08	.516	.033	-.0113	-.0044	-.40
	-.30	-.095	1.93	.378	-.189	-.0028	-.0676	-.30
	-.20	-.120	1.72	.198	-.069	-.0035	-.0406	-.20
	-.10	-.110	1.65	.271	.153	.0076	.0669	-.10
	0.00	-.122	1.77	.371	.047	.0022	.0784	0.00
	0.00	-.120	1.76	.373	.057	.0023	.0760	0.00
	.10	-.113	1.87	.438	-.031	-.0013	.0560	.10
	.20	-.116	1.94	.451	-.127	.0024	.0331	.20
	.30	-.110	2.10	.570	-.203	.0031	.0053	.30
	.40	-.134	2.25	.647	-.199	.0196	-.0518	.40
	.50	-.164	2.39	.708	-.204	.0387	-.1417	.50

X-29A ROTARY BALANCE DATA

9BWCVp+10-df(+25/-10)+30r-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
50	-.50	-.178	2.74	.747	.161	.0039	.1285	-.50
	-.40	-.125	2.60	.571	.209	-.0039	.0373	-.40
	-.30	-.119	2.51	.438	.047	-.0011	-.0474	-.30
	-.20	-.120	2.29	.298	-.119	.0029	-.0765	-.20
	-.10	-.123	2.19	.291	.170	.0055	.0704	-.10
	0.00	-.156	2.21	.440	.060	-.0067	.0712	0.00
	0.00	-.155	2.19	.464	.063	-.0064	.0760	0.00
	.10	-.176	2.32	.558	.011	-.0172	.0523	.10
	.20	-.176	2.42	.575	-.131	-.0102	.0078	.20
	.30	-.172	2.64	.689	-.230	.0110	-.0365	.30
	.40	-.182	2.84	.743	-.180	.0356	-.0832	.40
	.50	-.179	2.94	.635	-.271	.0432	-.2022	.50
55	-.60	-.219	2.85	.148	.258	-.0045	.1934	-.60
	-.50	-.217	2.82	.599	.403	-.0018	.2331	-.50
	-.40	-.173	2.59	.479	.197	.0003	.0941	-.40
	-.30	-.162	2.50	.436	.136	-.0040	.0022	-.30
	-.20	-.163	2.48	.326	-.089	-.0082	-.0991	-.20
	-.10	-.165	2.30	.318	.183	.0046	.0687	-.10
	0.00	-.186	2.37	.510	.096	.0043	.0694	0.00
	0.00	-.180	2.33	.485	.089	.0047	.0696	0.00
	.10	-.214	2.48	.617	-.020	.0109	.0086	.10
	.20	-.211	2.61	.663	-.101	.0091	-.0477	.20
	.30	-.219	2.82	.758	-.227	.0061	-.0839	.30
	.40	-.205	3.00	.646	-.297	.0203	-.1308	.40
	.50	-.193	3.00	.397	-.448	.0457	-.2919	.50
60	-.60	-.199	3.00	.215	.209	-.0092	.1910	-.60
	-.50	-.183	2.82	.259	.166	-.0067	.1535	-.50
	-.40	-.205	2.70	.427	.207	-.0057	.1178	-.40
	-.30	-.202	2.55	.402	.109	-.0049	.0135	-.30
	-.20	-.212	2.45	.336	-.029	-.0121	-.0598	-.20
	-.10	-.210	2.38	.283	.095	.0080	.0444	-.10
	0.00	-.193	2.37	.314	.017	.0062	.0125	0.00
	0.00	-.193	2.36	.296	.008	.0058	.0154	0.00
	.10	-.223	2.46	.334	-.091	.0042	-.0609	.10
	.20	-.258	2.67	.511	-.170	.0005	-.1137	.20
	.30	-.272	2.85	.532	-.340	-.0018	-.1909	.30
	.40	-.247	3.01	.392	-.423	.0136	-.2441	.40
	.50	-.208	3.09	.123	-.488	.0488	-.3112	.50
	.60	-.156	3.14	-.295	-.510	.0617	-.3389	.60
65	-.60	-.244	3.13	.255	.251	-.0190	.2137	-.60
	-.50	-.230	2.92	.178	.088	-.0172	.1322	-.50
	-.40	-.237	2.80	.299	.061	-.0125	.0757	-.40
	-.30	-.223	2.60	.302	.029	.0045	.0193	-.30
	-.20	-.239	2.48	.282	-.030	-.0006	-.0375	-.20
	-.10	-.228	2.44	.232	.027	.0066	.0054	-.10
	0.00	-.210	2.42	.165	-.044	.0058	-.0214	0.00
	0.00	-.208	2.40	.145	-.045	.0050	-.0230	0.00
	.10	-.220	2.46	.174	-.082	.0016	-.0658	.10
	.20	-.249	2.59	.225	-.205	-.0031	-.1345	.20
	.30	-.285	2.82	.270	-.364	.0044	-.1919	.30
	.40	-.259	2.96	.052	-.560	.0306	-.2489	.40
	.50	-.241	3.10	-.185	-.561	.0527	-.3069	.50
	.60	-.233	3.29	-.429	-.543	.0616	-.3351	.60

X-29A ROTARY BALANCE DATA

9BWCVp+10-df(+25/-10)+30r-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
70	-.60	-.267	3.27	.189	.260	-.0358	.2436	-.60
	-.50	-.254	3.07	.143	.162	-.0279	.1406	-.50
	-.40	-.239	2.84	.071	.124	-.0144	.0683	-.40
	-.30	-.259	2.67	.197	-.018	.0004	.0089	-.30
	-.20	-.258	2.54	.125	-.083	.0027	-.0563	-.20
	-.10	-.266	2.51	.207	-.004	.0036	-.0143	-.10
	0.00	-.263	2.46	.127	-.026	.0007	-.0165	0.00
	0.00	-.267	2.50	.126	-.030	.0023	-.0179	0.00
	.10	-.268	2.53	.120	-.087	-.0011	-.0593	.10
	.20	-.281	2.64	.134	-.199	-.0046	-.1007	.20
	.30	-.321	2.88	.188	-.313	.0012	-.1599	.30
	.40	-.319	3.10	-.008	-.419	.0266	-.2267	.40
	.50	-.280	3.21	-.326	-.455	.0526	-.2669	.50
	.60	-.262	3.48	-.464	-.299	.0713	-.3403	.60
75	-.60	-.225	3.37	.114	.317	-.0540	.2736	-.60
	-.50	-.254	3.17	.070	.235	-.0377	.1517	-.50
	-.40	-.289	2.91	.038	.120	-.0203	.0687	-.40
	-.30	-.295	2.72	.087	-.021	-.0091	.0140	-.30
	-.20	-.292	2.57	.051	-.084	-.0052	-.0559	-.20
	-.10	-.296	2.53	.185	-.017	-.0016	-.0191	-.10
	0.00	-.294	2.49	.101	-.051	-.0029	-.0102	0.00
	0.00	-.303	2.52	.099	-.044	-.0017	-.0082	0.00
	.10	-.306	2.56	.083	-.087	-.0032	-.0413	.10
	.20	-.314	2.67	.045	-.197	-.0046	-.0799	.20
	.30	-.338	2.90	.038	-.289	-.0017	-.1302	.30
	.40	-.348	3.12	-.121	-.387	.0232	-.1883	.40
	.50	-.358	3.32	-.357	-.331	.0528	-.2573	.50
	.60	-.244	3.60	-.497	-.140	.0858	-.3498	.60
80	-.60	-.260	3.44	-.019	.413	-.0634	.2685	-.60
	-.50	-.289	3.25	-.025	.298	-.0502	.1586	-.50
	-.40	-.315	3.01	.009	.129	-.0302	.0735	-.40
	-.30	-.336	2.77	.021	-.037	-.0187	.0117	-.30
	-.20	-.311	2.62	-.023	-.084	-.0115	-.0387	-.20
	-.10	-.310	2.54	.051	-.039	-.0085	-.0253	-.10
	0.00	-.322	2.51	.020	-.081	-.0083	-.0020	0.00
	0.00	-.328	2.50	.020	-.078	-.0085	-.0019	0.00
	.10	-.341	2.56	.003	-.098	-.0059	-.0314	.10
	.20	-.346	2.68	-.042	-.172	-.0069	-.0704	.20
	.30	-.350	2.87	-.088	-.294	-.0001	-.1159	.30
	.40	-.344	3.10	-.305	-.379	.0198	-.1735	.40
	.50	-.327	3.44	-.377	-.187	.0560	-.2433	.50
	.60	-.276	3.67	-.532	-.083	.0969	-.3421	.60

X-29A ROTARY BALANCE DATA

9BWCVp+10-df(+25/-10)+30r-60c+30bf BETA= 10

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
85	-.60	-.210	3.46	.036	.370	-.0780	.2779	-.60
	-.50	-.296	3.28	.003	.256	-.0632	.1641	-.50
	-.40	-.327	3.05	.001	.118	-.0439	.0746	-.40
	-.30	-.362	2.80	-.028	-.046	-.0298	.0133	-.30
	-.20	-.341	2.62	-.061	-.068	-.0209	-.0286	-.20
	-.10	-.329	2.55	-.049	-.038	-.0164	-.0318	-.10
	0.00	-.346	2.51	-.078	-.071	-.0113	-.0050	0.00
	0.00	-.355	2.52	-.072	-.068	-.0101	-.0036	0.00
	.10	-.368	2.56	-.092	-.110	-.0071	-.0270	.10
	.20	-.373	2.69	-.109	-.172	-.0060	-.0570	.20
	.30	-.372	2.90	-.174	-.272	.0013	-.0974	.30
	.40	-.338	3.18	-.272	-.270	.0190	-.1504	.40
	.50	-.277	3.45	-.344	-.261	.0555	-.2343	.50
	.60	-.158	3.68	-.463	-.168	.0974	-.3284	.60
90	-.60	-.170	3.44	.049	.272	-.0973	.2899	-.60
	-.50	-.294	3.25	-.012	.208	-.0767	.1772	-.50
	-.40	-.340	3.04	-.056	.105	-.0567	.0864	-.40
	-.30	-.371	2.77	-.051	-.020	-.0411	.0234	-.30
	-.20	-.360	2.63	-.103	-.082	-.0318	-.0219	-.20
	-.10	-.338	2.51	-.134	-.031	-.0264	-.0286	-.10
	0.00	-.350	2.49	-.145	-.058	-.0180	-.0096	0.00
	0.00	-.354	2.49	-.128	-.049	-.0129	-.0120	0.00
	.10	-.367	2.54	-.135	-.095	-.0099	-.0230	.10
	.20	-.388	2.65	-.158	-.185	-.0044	-.0493	.20
	.30	-.384	2.86	-.219	-.242	.0037	-.0846	.30
	.40	-.336	3.13	-.293	-.280	.0214	-.1456	.40
	.50	-.261	3.35	-.356	-.321	.0634	-.2259	.50
	.60	-.093	3.58	-.443	-.319	.1025	-.3175	.60

***** X-29A ROTARY BALANCE DATA *****

9B0WCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.40	.058	.10	.001	-.007	.1531	-.0052	-.40
	-.30	.051	.11	-.013	-.009	.1107	.0003	-.30
	-.20	.050	.15	-.025	-.012	.0678	.0022	-.20
	-.10	.049	.16	-.022	-.006	.0301	.0019	-.10
	-.05	.049	.17	-.022	-.005	.0118	.0017	-.05
	0.00	.051	.14	-.026	-.008	-.0045	.0002	0.00
	0.00	.051	.15	-.028	.009	-.0039	.0008	0.00
	.05	.051	.16	-.019	-.000	-.0215	.0016	.05
	.10	.050	.16	-.017	.001	-.0402	.0014	.10
	.20	.048	.14	-.015	.005	-.0779	.0016	.20
	.30	.048	.11	-.009	.009	-.1190	.0041	.30
	.40	.054	.11	-.002	.016	-.1581	.0102	.40
5	-.40	.045	.46	.122	-.087	.1333	.0146	-.40
	-.30	.038	.47	.113	-.060	.1009	.0143	-.30
	-.20	.031	.48	.119	-.040	.0661	.0125	-.20
	-.10	.026	.48	.126	-.023	.0288	.0078	-.10
	-.05	.026	.48	.127	-.021	.0110	.0050	-.05
	0.00	.031	.47	.121	-.022	-.0054	.0009	0.00
	0.00	.028	.48	.113	-.013	-.0053	.0020	0.00
	.05	.028	.49	.128	-.009	-.0227	-.0009	.05
	.10	.028	.48	.128	-.004	-.0404	-.0034	.10
	.20	.032	.49	.121	.014	-.0762	-.0066	.20
	.30	.039	.48	.118	.031	-.1100	-.0065	.30
	.40	.046	.48	.120	.055	-.1407	-.0064	.40
10	-.40	.040	.84	.256	-.149	.1032	.0428	-.40
	-.30	.035	.83	.264	-.113	.0808	.0289	-.30
	-.20	.021	.84	.279	-.080	.0571	.0200	-.20
	-.10	.008	.88	.289	-.047	.0281	.0115	-.10
	-.05	.003	.89	.294	-.034	.0124	.0074	-.05
	0.00	.009	.86	.281	-.022	-.0044	.0018	0.00
	0.00	.004	.87	.276	-.015	-.0049	.0030	0.00
	.05	.003	.88	.285	-.005	-.0218	-.0016	.05
	.10	.008	.88	.274	.009	-.0378	-.0059	.10
	.20	.023	.84	.251	.041	-.0649	-.0136	.20
	.30	.036	.82	.233	.072	-.0879	-.0219	.30
	.40	.040	.84	.222	.098	-.1119	-.0331	.40
15	-.40	.031	1.11	.316	-.224	.0597	.0730	-.40
	-.30	.025	1.12	.331	-.175	.0527	.0491	-.30
	-.20	.014	1.15	.359	-.120	.0379	.0289	-.20
	-.10	.005	1.17	.346	-.056	.0190	.0133	-.10
	-.05	.002	1.18	.343	-.032	.0082	.0070	-.05
	0.00	.007	1.16	.330	-.008	-.0023	.0002	0.00
	0.00	.006	1.16	.326	-.008	-.0023	.0006	0.00
	.05	-.000	1.19	.349	.011	-.0111	-.0039	.05
	.10	.002	1.17	.347	.032	-.0219	-.0087	.10
	.20	.012	1.13	.329	.073	-.0422	-.0225	.20
	.30	.021	1.09	.302	.112	-.0590	-.0406	.30
	.40	.025	1.08	.287	.147	-.0665	-.0613	.40

X-29A ROTARY BALANCE DATA

9B0WCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
20	-.40	.016	1.39	.395	-.263	.0224	.1077	-.40
	-.30	.014	1.37	.396	-.204	.0096	.0807	-.30
	-.20	.007	1.42	.393	-.145	.0079	.0468	-.20
	-.10	.002	1.45	.407	-.082	.0029	.0216	-.10
	-.05	.001	1.44	.409	-.050	-.0004	.0119	-.05
	0.00	.016	1.42	.396	-.027	-.0011	.0023	0.00
	0.00	.016	1.42	.397	-.027	-.0015	.0020	0.00
	.05	-.000	1.45	.409	.008	-.0052	-.0055	.05
	.10	-.000	1.46	.410	.032	-.0099	-.0152	.10
	.20	.002	1.43	.410	.086	-.0122	-.0407	.20
	.30	.005	1.39	.390	.141	-.0154	-.0739	.30
	.40	.004	1.39	.392	.165	-.0294	-.0972	.40
25	-.40	.014	1.73	.601	-.274	-.0009	.1255	-.40
	-.30	.007	1.68	.450	-.199	-.0155	.1040	-.30
	-.20	.002	1.67	.436	-.142	-.0190	.0796	-.20
	-.10	-.004	1.70	.453	-.080	-.0181	.0419	-.10
	-.05	-.006	1.69	.458	-.046	-.0152	.0256	-.05
	0.00	.012	1.68	.444	-.034	-.0084	.0067	0.00
	0.00	.009	1.69	.438	-.015	-.0104	.0069	0.00
	.05	-.007	1.71	.456	-.012	.0027	-.0149	.05
	.10	-.005	1.69	.451	.011	.0116	-.0337	.10
	.20	.001	1.67	.444	.061	.0166	-.0679	.20
	.30	-.002	1.71	.501	.146	.0129	-.0965	.30
	.40	.005	1.73	.593	.177	-.0073	-.1046	.40
30	-.40	-.004	2.13	.851	-.329	-.0192	.1228	-.40
	-.30	-.005	2.03	.660	-.230	-.0325	.1090	-.30
	-.20	-.006	1.99	.559	-.116	-.0269	.0780	-.20
	-.10	-.006	1.97	.521	-.055	-.0166	.0373	-.10
	-.05	-.005	1.93	.495	-.043	-.0058	.0179	-.05
	0.00	.010	1.91	.465	-.026	-.0013	.0023	0.00
	0.00	.008	1.92	.464	-.023	-.0002	.0022	0.00
	.05	-.002	1.93	.488	-.027	.0031	-.0084	.05
	.10	-.000	1.94	.513	-.006	.0093	-.0240	.10
	.20	-.002	1.98	.594	.049	.0299	-.0668	.20
	.30	-.008	2.00	.697	.174	.0395	-.1071	.30
	.40	-.014	2.10	.808	.228	.0197	-.1089	.40
35	-.40	-.027	2.42	1.045	-.367	-.0201	.0924	-.40
	-.30	-.016	2.29	.930	-.228	-.0410	.0697	-.30
	-.20	-.015	2.19	.752	-.107	-.0478	.0496	-.20
	-.10	-.013	2.19	.622	-.021	-.0274	.0293	-.10
	-.05	-.013	2.19	.563	-.041	-.0088	.0100	-.05
	0.00	.016	2.14	.524	-.057	-.0014	.0036	0.00
	0.00	.013	2.14	.521	-.035	-.0013	.0028	0.00
	.05	-.012	2.16	.555	-.042	.0083	.0002	.05
	.10	-.010	2.13	.602	-.047	.0339	-.0259	.10
	.20	-.014	2.12	.751	.026	.0495	-.0477	.20
	.30	-.020	2.24	.915	.115	.0379	-.0532	.30
	.40	-.029	2.41	1.031	.203	.0192	-.0802	.40

X-29A ROTARY BALANCE DATA

9B0WCV

BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
40	-.40	-.053	2.72	1.115	-.193	-.0199	.0576	-.40
	-.30	-.044	2.56	1.071	-.199	-.0378	.0177	-.30
	-.20	-.038	2.44	.856	-.123	-.0423	.0000	-.20
	-.10	-.026	2.31	.635	-.033	-.0447	.0306	-.10
	-.05	-.025	2.33	.596	-.006	-.0398	.0252	-.05
	0.00	-.004	2.29	.549	-.084	.0103	-.0002	0.00
	0.00	-.006	2.33	.555	-.087	.0092	-.0017	0.00
	.05	-.020	2.28	.551	-.077	.0330	-.0014	.05
	.10	-.029	2.29	.648	-.021	.0389	-.0075	.10
	.20	-.036	2.37	.847	.012	.0394	.0170	.20
	.30	-.039	2.55	.997	.104	.0394	-.0279	.30
	.40	-.048	2.73	1.111	.103	.0152	-.0316	.40
45	-.40	-.065	2.98	1.160	-.129	-.0284	.0488	-.40
	-.30	-.058	2.81	1.106	-.156	-.0395	.0049	-.30
	-.20	-.057	2.60	.947	-.148	-.0534	-.0182	-.20
	-.10	-.041	2.46	.676	-.107	-.0307	-.0140	-.10
	-.05	-.040	2.43	.566	-.069	-.0276	.0145	-.05
	0.00	-.012	2.37	.532	-.078	.0169	.0012	0.00
	0.00	-.030	2.35	.512	-.074	.0184	.0042	0.00
	.05	-.040	2.36	.559	-.037	.0239	.0204	.05
	.10	-.044	2.46	.708	.004	.0344	.0350	.10
	.20	-.049	2.63	.910	.026	.0463	.0236	.20
	.30	-.049	2.82	1.056	.002	.0279	.0204	.30
	.40	-.063	3.00	1.169	-.010	.0286	-.0295	.40
50	-.40	-.089	3.21	1.169	.049	-.0452	.0728	-.40
	-.30	-.085	3.04	1.146	-.002	-.0369	-.0092	-.30
	-.20	-.084	2.87	1.018	-.067	-.0444	-.0494	-.20
	-.10	-.078	2.64	.731	-.125	-.0317	-.0579	-.10
	-.05	-.072	2.54	.564	-.123	-.0188	-.0355	-.05
	0.00	-.051	2.45	.450	-.060	.0154	.0243	0.00
	0.00	-.053	2.45	.457	-.036	.0141	.0149	0.00
	.05	-.070	2.54	.574	-.023	.0199	.0626	.05
	.10	-.078	2.67	.739	-.028	.0322	.0741	.10
	.20	-.078	2.89	1.008	-.085	.0310	.0680	.20
	.30	-.075	3.02	1.126	-.107	.0316	.0313	.30
	.40	-.080	3.21	1.178	-.148	.0452	-.0397	.40
55	-.40	-.108	3.26	1.108	.202	-.0216	.1088	-.40
	-.30	-.099	3.08	1.103	.027	-.0186	-.0112	-.30
	-.20	-.094	2.85	.912	-.086	.0079	-.0878	-.20
	-.10	-.092	2.69	.732	-.190	.0042	-.1276	-.10
	-.05	-.083	2.63	.606	-.140	-.0120	-.0741	-.05
	0.00	-.062	2.55	.505	-.029	.0047	.0310	0.00
	0.00	-.058	2.52	.485	-.031	.0070	.0467	0.00
	.05	-.090	2.64	.618	.003	.0090	.0960	.05
	.10	-.095	2.67	.687	.049	-.0071	.1403	.10
	.20	-.091	2.80	.920	-.044	-.0025	.0889	.20
	.30	-.096	3.04	1.100	-.122	.0146	.0361	.30
	.40	-.104	3.21	1.107	-.181	.0133	-.0696	.40

X-29A ROTARY BALANCE DATA

9B0WCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
60	-.40	-.119	3.31	.793	.295	-.0183	.2120	-.40
	-.30	-.133	3.20	.958	.114	.0009	.0774	-.30
	-.20	-.140	2.94	.828	-.052	.0091	-.0175	-.20
	-.10	-.144	2.75	.630	-.099	.0057	-.0794	-.10
	-.05	-.144	2.71	.529	-.153	.0042	-.0912	-.05
	0.00	-.078	2.63	.470	-.060	.0000	.0223	0.00
	0.00	-.079	2.63	.474	-.062	.0026	.0408	0.00
	.05	-.139	2.69	.509	.037	-.0060	.1282	.05
	.10	-.137	2.72	.595	.004	-.0080	.0943	.10
	.20	-.134	2.93	.818	-.054	-.0098	.0519	.20
	.30	-.119	3.10	.904	-.168	-.0004	-.0280	.30
	.40	-.104	3.28	.820	-.257	.0224	-.1401	.40
65	-.40	-.103	3.24	.418	.123	-.0133	.1438	-.40
	-.30	-.122	3.14	.641	.051	-.0053	.0891	-.30
	-.20	-.132	2.98	.597	-.026	.0019	.0199	-.20
	-.10	-.137	2.82	.517	-.118	.0040	-.0603	-.10
	-.05	-.136	2.76	.455	-.148	.0030	-.0696	-.05
	0.00	-.103	2.72	.448	-.072	.0001	.0143	0.00
	0.00	-.104	2.71	.435	-.062	-.0009	.0175	0.00
	.05	-.131	2.74	.442	.004	-.0049	.0936	.05
	.10	-.130	2.79	.497	-.017	-.0047	.0811	.10
	.20	-.119	2.90	.553	-.111	-.0016	.0148	.20
	.30	-.107	3.03	.606	-.169	.0123	-.0392	.30
	.40	-.069	3.14	.301	-.085	.0216	-.0814	.40
70	-.40	-.099	3.31	.224	-.008	-.0216	.1114	-.40
	-.30	-.114	3.06	.246	.006	-.0070	.0566	-.30
	-.20	-.144	2.90	.395	.021	.0002	.0265	-.20
	-.10	-.147	2.82	.366	-.086	-.0003	-.0102	-.10
	-.05	-.150	2.80	.381	-.072	.0007	-.0144	-.05
	0.00	-.135	2.81	.420	-.071	.0008	.0181	0.00
	0.00	-.142	2.82	.410	-.036	-.0002	.0274	0.00
	.05	-.147	2.78	.370	-.070	.0002	.0306	.05
	.10	-.141	2.79	.347	-.086	.0013	.0284	.10
	.20	-.121	2.82	.319	-.126	.0093	-.0042	.20
	.30	-.090	3.00	.222	-.092	.0165	-.0194	.30
	.40	-.078	3.23	.237	-.062	.0344	-.0846	.40
75	-.40	-.124	3.37	.090	-.018	-.0348	.1127	-.40
	-.30	-.117	3.10	.098	-.002	-.0172	.0428	-.30
	-.20	-.113	2.85	.071	-.026	-.0114	-.0033	-.20
	-.10	-.130	2.79	.199	-.076	-.0032	-.0444	-.10
	-.05	-.129	2.76	.224	-.079	-.0020	-.0352	-.05
	0.00	-.120	2.82	.289	-.090	.0018	.0184	0.00
	0.00	-.124	2.78	.280	-.070	.0023	.0180	0.00
	.05	-.124	2.76	.207	-.066	.0038	.0549	.05
	.10	-.117	2.75	.140	-.058	.0060	.0751	.10
	.20	-.098	2.83	.070	-.099	.0173	.0146	.20
	.30	-.098	3.01	.126	-.100	.0269	-.0260	.30
	.40	-.104	3.30	.138	-.066	.0454	-.0968	.40

X-29A ROTARY BALANCE DATA

9B0WCV

BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
80	-.40	-.141	3.30	-.024	-.032	-.0485	.1289	-.40
	-.30	-.118	3.07	-.004	.002	-.0309	.0479	-.30
	-.20	-.119	2.87	-.020	-.014	-.0203	.0105	-.20
	-.10	-.122	2.78	.005	-.020	-.0081	-.0548	-.10
	-.05	-.124	2.77	.055	-.057	-.0062	-.0402	-.05
	0.00	-.102	2.77	.103	-.079	.0013	.0164	0.00
	0.00	-.108	2.78	.105	-.071	.0031	.0115	0.00
	.05	-.117	2.76	.026	-.068	.0052	.0642	.05
	.10	-.113	2.76	-.035	-.080	.0106	.0610	.10
	.20	-.110	2.85	-.010	-.091	.0231	.0022	.20
	.30	-.102	3.02	.038	-.091	.0331	-.0384	.30
	.40	-.107	3.30	.020	-.057	.0539	-.1107	.40
85	-.40	-.150	3.32	-.060	-.031	-.0568	.1304	-.40
	-.30	-.149	3.03	-.048	.006	-.0358	.0587	-.30
	-.20	-.139	2.88	-.097	-.003	-.0265	.0191	-.20
	-.10	-.134	2.79	-.087	-.010	-.0101	-.0361	-.10
	-.05	-.134	2.77	-.037	-.024	-.0075	-.0268	-.05
	0.00	-.110	2.74	-.023	-.056	.0032	.0138	0.00
	0.00	-.113	2.76	-.012	-.069	.0060	.0124	0.00
	.05	-.128	2.75	-.064	-.094	.0088	.0487	.05
	.10	-.124	2.77	-.133	-.083	.0150	.0445	.10
	.20	-.125	2.86	-.086	-.064	.0294	-.0068	.20
	.30	-.134	3.01	-.021	-.085	.0408	-.0427	.30
	.40	-.125	3.25	-.021	-.029	.0620	-.1173	.40
90	-.40	-.090	3.30	-.092	-.009	-.0602	.1210	-.40
	-.30	-.159	2.98	-.114	-.004	-.0397	.0618	-.30
	-.20	-.152	2.84	-.180	-.024	-.0301	.0299	-.20
	-.10	-.149	2.74	-.217	-.027	-.0149	-.0205	-.10
	-.05	-.149	2.73	-.143	-.016	-.0082	-.0259	-.05
	0.00	-.130	2.72	-.143	-.041	.0043	.0182	0.00
	0.00	-.153	2.73	-.146	-.048	.0029	.0129	0.00
	.05	-.147	2.74	-.177	-.081	.0104	.0420	.05
	.10	-.140	2.77	-.245	-.072	.0204	.0299	.10
	.20	-.140	2.87	-.171	-.077	.0344	-.0114	.20
	.30	-.142	3.00	-.094	-.077	.0459	-.0452	.30
	.40	-.063	3.27	-.072	-.015	.0710	-.1064	.40

***** X-29A ROTARY BALANCE DATA *****

9B1WCV

BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.40	.045	.14	-.034	.007	.1465	-.0061	-.40
	-.30	.040	.13	-.041	.004	.1068	-.0011	-.30
	-.20	.038	.16	-.044	-.003	.0652	.0001	-.20
	-.10	.037	.17	-.045	.001	.0275	-.0014	-.10
	-.05	.037	.18	-.045	.002	.0099	-.0017	-.05
	0.00	.039	.16	-.055	-.004	-.0044	-.0017	0.00
	0.00	.039	.16	-.056	-.011	-.0052	-.0015	0.00
	.05	.039	.18	-.044	.008	-.0222	-.0021	.05
	.10	.037	.18	-.044	.011	-.0401	-.0021	.10
	.20	.035	.16	-.045	.014	-.0777	-.0016	.20
	.30	.034	.14	-.043	.013	-.1196	.0018	.30
	.40	.040	.14	-.041	.009	-.1566	.0090	.40
5	-.40	.029	.52	.100	-.054	.1319	.0144	-.40
	-.30	.023	.51	.086	-.040	.0990	.0127	-.30
	-.20	.017	.52	.086	-.022	.0639	.0101	-.20
	-.10	.013	.52	.089	-.005	.0277	.0043	-.10
	-.05	.014	.52	.090	.000	.0105	.0014	-.05
	0.00	.016	.51	.075	-.012	-.0056	-.0013	0.00
	0.00	.017	.51	.078	-.013	-.0059	-.0016	0.00
	.05	.015	.53	.090	.007	-.0235	-.0048	.05
	.10	.015	.53	.092	.014	-.0409	-.0076	.10
	.20	.016	.54	.088	.029	-.0765	-.0112	.20
	.30	.022	.52	.091	.033	-.1111	-.0103	.30
	.40	.026	.50	.104	.053	-.1423	-.0077	.40
10	-.40	.020	.88	.220	-.120	.1026	.0414	-.40
	-.30	.015	.87	.219	-.082	.0794	.0272	-.30
	-.20	.002	.89	.234	-.050	.0565	.0178	-.20
	-.10	-.013	.91	.245	-.020	.0271	.0086	-.10
	-.05	-.018	.92	.251	-.009	.0109	.0039	-.05
	0.00	-.014	.89	.237	-.009	-.0058	-.0007	0.00
	0.00	-.014	.89	.236	-.012	-.0060	-.0007	0.00
	.05	-.018	.92	.253	.018	-.0236	-.0057	.05
	.10	-.013	.92	.248	.032	-.0395	-.0101	.10
	.20	.001	.89	.238	.052	-.0672	-.0184	.20
	.30	.014	.85	.227	.080	-.0901	-.0264	.30
	.40	.015	.88	.225	.088	-.1159	-.0366	.40
15	-.40	.005	1.15	.300	-.177	.0637	.0751	-.40
	-.30	-.001	1.16	.311	-.132	.0552	.0503	-.30
	-.20	-.011	1.17	.340	-.091	.0373	.0273	-.20
	-.10	-.023	1.23	.361	-.040	.0167	.0121	-.10
	-.05	-.027	1.24	.370	-.020	.0057	.0058	-.05
	0.00	-.024	1.23	.353	-.014	-.0051	-.0004	0.00
	0.00	-.023	1.23	.352	-.008	-.0046	-.0007	0.00
	.05	-.024	1.25	.366	.019	-.0146	-.0065	.05
	.10	-.020	1.24	.361	.038	-.0266	-.0124	.10
	.20	-.011	1.19	.339	.079	-.0467	-.0265	.20
	.30	-.003	1.18	.321	.122	-.0663	-.0466	.30
	.40	.001	1.15	.299	.162	-.0707	-.0672	.40

X-29A ROTARY BALANCE DATA

9B1WCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
20	-.40	-.012	1.43	.369	-.186	.0241	.1077	-.40
	-.30	-.019	1.45	.370	-.157	.0100	.0853	-.30
	-.20	-.024	1.49	.392	-.115	.0045	.0523	-.20
	-.10	-.026	1.51	.410	-.061	-.0003	.0241	-.10
	-.05	-.025	1.50	.397	-.026	-.0023	.0128	-.05
	0.00	-.018	1.49	.396	.001	-.0032	.0028	0.00
	0.00	-.018	1.49	.393	-.004	-.0047	.0024	0.00
	.05	-.028	1.51	.419	.036	-.0055	-.0082	.05
	.10	-.029	1.51	.418	.062	-.0093	-.0188	.10
	.20	-.027	1.50	.404	.107	-.0166	-.0466	.20
	.30	-.023	1.47	.394	.153	-.0206	-.0778	.30
	.40	-.019	1.46	.390	.166	-.0346	-.0985	.40
25	-.40	-.022	1.75	.477	-.127	-.0074	.1499	-.40
	-.30	-.021	1.75	.408	-.119	-.0197	.1290	-.30
	-.20	-.025	1.71	.418	-.083	-.0224	.0939	-.20
	-.10	-.031	1.74	.451	-.041	-.0191	.0495	-.10
	-.05	-.033	1.75	.457	-.026	-.0149	.0293	-.05
	0.00	-.020	1.73	.443	-.016	-.0078	.0064	0.00
	0.00	-.022	1.72	.438	-.014	-.0098	.0085	0.00
	.05	-.033	1.74	.454	.016	.0035	-.0173	.05
	.10	-.029	1.72	.451	.033	.0122	-.0393	.10
	.20	-.026	1.73	.449	.084	.0162	-.0810	.20
	.30	-.028	1.77	.476	.123	.0135	-.1175	.30
	.40	-.025	1.78	.519	.104	-.0050	-.1268	.40
30	-.40	-.032	2.03	.532	.143	-.0154	.1576	-.40
	-.30	-.026	2.01	.513	.096	-.0241	.1290	-.30
	-.20	-.033	2.02	.489	.034	-.0252	.1072	-.20
	-.10	-.033	1.97	.493	-.003	-.0149	.0528	-.10
	-.05	-.034	1.95	.490	-.004	-.0068	.0229	-.05
	0.00	-.027	1.94	.469	-.018	-.0008	.0010	0.00
	0.00	-.028	1.95	.472	-.009	-.0011	.0013	0.00
	.05	-.033	1.97	.487	-.010	.0027	-.0160	.05
	.10	-.031	1.95	.495	-.011	.0087	-.0413	.10
	.20	-.029	2.03	.516	-.011	.0177	-.0879	.20
	.30	-.028	2.06	.559	-.035	.0182	-.1086	.30
	.40	-.031	2.08	.611	-.091	.0060	-.1247	.40
35	-.40	-.043	2.31	.506	.311	-.0183	.2055	-.40
	-.30	-.038	2.24	.537	.258	-.0216	.1536	-.30
	-.20	-.040	2.22	.555	.175	-.0159	.1112	-.20
	-.10	-.044	2.22	.540	.092	-.0090	.0617	-.10
	-.05	-.047	2.22	.546	.060	-.0056	.0352	-.05
	0.00	-.033	2.19	.537	-.002	-.0017	.0088	0.00
	0.00	-.035	2.20	.536	-.002	-.0032	.0085	0.00
	.05	-.050	2.23	.557	-.031	-.0017	-.0133	.05
	.10	-.049	2.24	.565	-.078	.0002	-.0399	.10
	.20	-.041	2.27	.605	-.164	.0089	-.0816	.20
	.30	-.036	2.27	.624	-.232	.0121	-.1108	.30
	.40	-.043	2.34	.574	-.332	.0149	-.1732	.40

X-29A ROTARY BALANCE DATA

9B1WCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
40	-.40	-.064	2.41	.544	.470	-.0224	.2861	-.40
	-.30	-.059	2.41	.594	.400	-.0300	.2152	-.30
	-.20	-.062	2.44	.608	.256	-.0073	.1378	-.20
	-.10	-.064	2.43	.604	.150	.0029	.0705	-.10
	-.05	-.064	2.40	.575	.079	.0069	.0389	-.05
	0.00	-.059	2.38	.571	.008	.0071	.0119	0.00
	0.00	-.062	2.40	.577	-.007	.0114	.0124	0.00
	.05	-.071	2.42	.618	-.049	.0087	-.0074	.05
	.10	-.071	2.47	.648	-.134	.0022	-.0360	.10
	.20	-.063	2.49	.676	-.258	.0082	-.0874	.20
	.30	-.056	2.51	.643	-.351	.0148	-.1401	.30
	.40	-.063	2.45	.589	-.396	.0198	-.2502	.40
45	-.40	-.082	2.57	.460	.559	-.0164	.3234	-.40
	-.30	-.075	2.56	.567	.435	-.0112	.2502	-.30
	-.20	-.072	2.53	.611	.289	-.0151	.1704	-.20
	-.10	-.071	2.55	.621	.157	.0160	.0783	-.10
	-.05	-.069	2.51	.571	.075	.0228	.0431	-.05
	0.00	-.055	2.44	.515	-.017	.0291	.0129	0.00
	0.00	-.059	2.44	.519	-.021	.0283	.0180	0.00
	.05	-.068	2.45	.578	-.047	.0267	-.0145	.05
	.10	-.077	2.62	.713	-.160	.0171	-.0395	.10
	.20	-.069	2.65	.695	-.313	-.0010	-.1027	.20
	.30	-.062	2.55	.681	-.438	.0194	-.1975	.30
	.40	-.081	2.61	.581	-.508	.0102	-.2971	.40
50	-.40	-.109	2.70	.377	.587	-.0203	.3327	-.40
	-.30	-.104	2.68	.483	.489	-.0048	.2901	-.30
	-.20	-.098	2.63	.524	.225	.0085	.2036	-.20
	-.10	-.095	2.58	.577	.138	-.0098	.1089	-.10
	-.05	-.094	2.57	.596	.069	.0055	.0725	-.05
	0.00	-.088	2.54	.503	.015	.0148	.0408	0.00
	0.00	-.089	2.55	.496	.010	.0154	.0401	0.00
	.05	-.089	2.55	.534	-.017	.0113	.0112	.05
	.10	-.092	2.63	.679	-.135	.0192	-.0360	.10
	.20	-.086	2.62	.672	-.326	.0060	-.1415	.20
	.30	-.089	2.67	.578	-.394	-.0081	-.2291	.30
	.40	-.099	2.69	.485	-.494	.0118	-.3168	.40
55	-.40	-.131	2.90	.384	.539	-.0273	.3213	-.40
	-.30	-.114	2.79	.445	.316	.0038	.2569	-.30
	-.20	-.104	2.70	.462	.222	.0060	.2098	-.20
	-.10	-.104	2.64	.477	.099	.0030	.1206	-.10
	-.05	-.106	2.62	.489	.067	.0000	.0834	-.05
	0.00	-.092	2.59	.498	.024	.0077	.0632	0.00
	0.00	-.097	2.65	.513	.022	.0080	.0595	0.00
	.05	-.103	2.66	.526	-.020	.0030	.0138	.05
	.10	-.104	2.67	.558	-.106	.0000	-.0378	.10
	.20	-.105	2.68	.514	-.258	-.0075	-.1742	.20
	.30	-.109	2.76	.537	-.264	-.0058	-.1845	.30
	.40	-.118	2.83	.459	-.362	.0181	-.2587	.40

X-29A ROTARY BALANCE DATA

9B1WCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
60	-.40	-.141	3.12	.473	.428	-.0407	.2710	-.40
	-.30	-.142	2.95	.468	.249	-.0034	.1960	-.30
	-.20	-.159	2.87	.516	.130	.0026	.1535	-.20
	-.10	-.163	2.79	.456	.070	-.0001	.1110	-.10
	-.05	-.170	2.79	.501	.072	-.0017	.1052	-.05
	0.00	-.115	2.71	.466	.013	-.0037	.0722	0.00
	0.00	-.118	2.72	.466	.001	-.0044	.0707	0.00
	.05	-.163	2.77	.514	-.076	-.0014	-.0184	.05
	.10	-.158	2.78	.495	-.124	-.0021	-.0748	.10
	.20	-.149	2.82	.496	-.189	-.0037	-.1319	.20
	.30	-.128	2.88	.492	-.255	.0040	-.1603	.30
	.40	-.116	3.02	.459	-.330	.0232	-.2305	.40
65	-.40	-.151	3.31	.487	.339	-.0436	.2143	-.40
	-.30	-.142	3.01	.423	.230	-.0082	.1638	-.30
	-.20	-.147	2.92	.402	.109	.0013	.1128	-.20
	-.10	-.155	2.83	.427	.050	-.0015	.0862	-.10
	-.05	-.158	2.81	.451	.032	-.0024	.0759	-.05
	0.00	-.135	2.81	.475	-.012	-.0041	.0582	0.00
	0.00	-.136	2.77	.466	-.015	-.0022	.0548	0.00
	.05	-.156	2.79	.439	-.094	-.0007	-.0377	.05
	.10	-.151	2.81	.431	-.116	-.0013	-.0494	.10
	.20	-.139	2.86	.412	-.161	.0000	-.0802	.20
	.30	-.127	2.97	.422	-.214	.0086	-.1197	.30
	.40	-.125	3.15	.411	-.255	.0295	-.1832	.40
70	-.40	-.122	3.35	.226	.024	-.0195	.1101	-.40
	-.30	-.131	3.08	.245	.054	-.0086	.0569	-.30
	-.20	-.153	2.90	.307	.062	-.0012	.0533	-.20
	-.10	-.159	2.82	.325	.001	-.0011	.0222	-.10
	-.05	-.162	2.82	.366	.010	-.0016	.0335	-.05
	0.00	-.164	2.84	.438	-.025	-.0004	.0291	0.00
	0.00	-.168	2.84	.425	-.026	-.0010	.0308	0.00
	.05	-.161	2.80	.383	-.059	.0015	-.0093	.05
	.10	-.155	2.80	.332	-.084	.0022	.0016	.10
	.20	-.135	2.83	.274	-.102	.0068	-.0225	.20
	.30	-.116	3.04	.237	-.079	.0154	-.0295	.30
	.40	-.113	3.27	.262	-.043	.0335	-.0933	.40
75	-.40	-.147	3.40	.131	.019	-.0330	.1120	-.40
	-.30	-.138	3.11	.126	.025	-.0183	.0380	-.30
	-.20	-.136	2.86	.078	.011	-.0133	-.0040	-.20
	-.10	-.152	2.79	.181	-.016	-.0050	-.0365	-.10
	-.05	-.157	2.79	.261	-.026	-.0032	-.0128	-.05
	0.00	-.159	2.81	.318	-.050	.0028	.0149	0.00
	0.00	-.163	2.82	.332	-.052	.0005	.0186	0.00
	.05	-.150	2.78	.241	-.047	.0040	.0362	.05
	.10	-.143	2.78	.162	-.038	.0061	.0540	.10
	.20	-.128	2.87	.094	-.059	.0136	.0123	.20
	.30	-.130	3.08	.151	-.077	.0250	-.0285	.30
	.40	-.137	3.32	.154	-.039	.0441	-.1053	.40

X-29A ROTARY BALANCE DATA

9B1WCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
80	-.40	-.164	3.33	-.010	.006	-.0482	.1271	-.40
	-.30	-.133	3.06	.015	.039	-.0297	.0476	-.30
	-.20	-.134	2.91	-.014	.029	-.0198	.0030	-.20
	-.10	-.133	2.81	-.013	.010	-.0093	-.0535	-.10
	-.05	-.136	2.80	.059	-.011	-.0056	-.0402	-.05
	0.00	-.138	2.82	.130	-.041	.0022	.0129	0.00
	0.00	-.138	2.84	.092	-.049	.0051	.0253	0.00
	.05	-.132	2.81	.030	-.024	.0052	.0636	.05
	.10	-.128	2.78	-.024	-.038	.0098	.0549	.10
	.20	-.131	2.90	-.003	-.039	.0220	.0002	.20
	.30	-.129	3.08	.050	-.065	.0328	-.0397	.30
	.40	-.149	3.32	.034	-.019	.0528	-.1164	.40
85	-.40	-.169	3.38	-.033	-.001	-.0561	.1282	-.40
	-.30	-.165	3.13	-.033	.050	-.0368	.0501	-.30
	-.20	-.149	2.94	-.091	.016	-.0259	.0160	-.20
	-.10	-.142	2.82	-.114	.016	-.0130	-.0357	-.10
	-.05	-.144	2.83	-.034	.006	-.0078	-.0309	-.05
	0.00	-.139	2.80	-.011	-.020	.0023	.0066	0.00
	0.00	-.144	2.80	-.001	-.023	.0035	.0053	0.00
	.05	-.141	2.82	-.066	-.053	.0087	.0485	.05
	.10	-.138	2.82	-.122	-.043	.0152	.0410	.10
	.20	-.144	2.92	-.079	-.059	.0270	-.0077	.20
	.30	-.156	3.10	-.014	-.052	.0390	-.0459	.30
	.40	-.163	3.35	-.014	-.006	.0619	-.1226	.40
90	-.40	-.109	3.31	-.080	.009	-.0615	.1187	-.40
	-.30	-.167	3.05	-.097	.047	-.0423	.0519	-.30
	-.20	-.157	2.88	-.161	.045	-.0299	.0228	-.20
	-.10	-.149	2.79	-.217	.013	-.0171	-.0237	-.10
	-.05	-.150	2.78	-.145	.032	-.0088	-.0259	-.05
	0.00	-.150	2.75	-.103	.006	-.0011	.0116	0.00
	0.00	-.152	2.77	-.119	-.016	.0030	.0123	0.00
	.05	-.152	2.77	-.174	-.034	.0093	.0383	.05
	.10	-.146	2.78	-.225	-.003	.0177	.0220	.10
	.20	-.152	2.88	-.153	-.020	.0309	-.0161	.20
	.30	-.163	3.05	-.087	-.038	.0448	-.0464	.30
	.40	-.105	3.31	-.055	.035	.0672	-.1140	.40

***** X-29A ROTARY BALANCE DATA *****

9B2WCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.50	.037	.09	-.007	-.013	.1763	-.0112	-.50
	-.40	.030	.00	-.030	-.018	.1487	-.0036	-.40
	-.30	.025	-.03	-.047	-.020	.1085	.0014	-.30
	-.20	.027	-.01	-.059	-.022	.0663	.0026	-.20
	-.10	.028	-.01	-.063	-.024	.0287	.0012	-.10
	0.00	.029	-.02	-.076	-.035	-.0041	.0007	0.00
	0.00	.030	-.01	-.075	-.035	-.0040	.0011	0.00
	.10	.028	-.01	-.063	-.015	-.0385	-.0003	.10
	.20	.026	-.01	-.065	-.017	-.0763	-.0004	.20
	.30	.025	-.02	-.057	-.020	-.1178	.0014	.30
	.40	.029	.01	-.050	-.027	-.1551	.0073	.40
	.50	.035	.10	-.038	-.032	-.1839	.0179	.50
5	-.50	.012	.42	.156	-.100	.1664	.0229	-.50
	-.40	.017	.33	.105	-.083	.1306	.0165	-.40
	-.30	.013	.33	.083	-.060	.0987	.0154	-.30
	-.20	.008	.33	.079	-.043	.0652	.0129	-.20
	-.10	.005	.34	.079	-.023	.0288	.0074	-.10
	0.00	.008	.33	.065	-.033	-.0044	.0011	0.00
	0.00	.008	.33	.065	-.035	-.0043	.0012	0.00
	.10	.007	.34	.078	-.007	-.0390	-.0061	.10
	.20	.009	.34	.076	.001	-.0743	-.0104	.20
	.30	.015	.34	.080	.009	-.1077	-.0110	.30
	.40	.018	.33	.100	.017	-.1380	-.0112	.40
	.50	.013	.42	.154	.024	-.1761	-.0164	.50
10	-.50	-.000	.75	.279	-.183	.1125	.0671	-.50
	-.40	.008	.70	.243	-.135	.1006	.0512	-.40
	-.30	.005	.68	.232	-.092	.0784	.0348	-.30
	-.20	-.006	.70	.242	-.063	.0555	.0235	-.20
	-.10	-.021	.74	.249	-.035	.0272	.0127	-.10
	0.00	-.022	.71	.235	-.027	-.0046	.0010	0.00
	0.00	-.023	.71	.236	-.027	-.0040	.0012	0.00
	.10	-.021	.73	.248	.011	-.0368	-.0109	.10
	.20	-.007	.69	.240	.027	-.0635	-.0219	.20
	.30	.004	.68	.236	.053	-.0861	-.0339	.30
	.40	.005	.70	.244	.056	-.1103	-.0488	.40
	.50	-.004	.75	.278	.065	-.1218	-.0633	.50
15	-.50	-.024	1.07	.423	-.225	.0697	.1146	-.50
	-.40	-.011	.99	.359	-.188	.0557	.0952	-.40
	-.30	-.012	1.00	.358	-.129	.0505	.0673	-.30
	-.20	-.019	1.02	.376	-.092	.0339	.0401	-.20
	-.10	-.027	1.05	.397	-.047	.0148	.0186	-.10
	0.00	-.031	1.04	.385	-.016	-.0030	.0007	0.00
	0.00	-.031	1.05	.388	-.015	-.0029	.0005	0.00
	.10	-.025	1.03	.391	.029	-.0217	-.0178	.10
	.20	-.019	1.00	.377	.061	-.0424	-.0397	.20
	.30	-.015	.99	.361	.086	-.0610	-.0679	.30
	.40	-.012	.96	.354	.105	-.0626	-.0952	.40
	.50	-.030	1.04	.413	.110	-.0777	-.1184	.50

X-29A ROTARY BALANCE DATA

9B2WCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
20	-.50	-.049	1.36	.539	-.187	.0377	.1609	-.50
	-.40	-.032	1.28	.446	-.197	.0132	.1510	-.40
	-.30	-.029	1.28	.439	-.164	.0011	.1173	-.30
	-.20	-.032	1.31	.455	-.110	-.0024	.0747	-.20
	-.10	-.033	1.32	.474	-.063	-.0035	.0346	-.10
	0.00	-.026	1.31	.460	-.008	-.0018	.0014	0.00
	0.00	-.027	1.30	.459	-.009	-.0034	.0013	0.00
	.10	-.037	1.32	.479	.047	-.0048	-.0314	.10
	.20	-.035	1.30	.458	.080	-.0102	-.0705	.20
	.30	-.035	1.28	.452	.108	-.0133	-.1140	.30
	.40	-.038	1.27	.460	.105	-.0220	-.1499	.40
	.50	-.055	1.35	.543	.060	-.0461	-.1706	.50
25	-.50	-.079	1.68	.679	-.035	.0097	.1925	-.50
	-.40	-.045	1.58	.569	-.066	-.0172	.1812	-.40
	-.30	-.036	1.54	.511	-.077	-.0259	.1563	-.30
	-.20	-.036	1.52	.520	-.046	-.0294	.1127	-.20
	-.10	-.039	1.54	.539	-.028	-.0255	.0636	-.10
	0.00	-.036	1.56	.547	-.018	-.0103	.0057	0.00
	0.00	-.038	1.56	.543	-.017	-.0100	.0058	0.00
	.10	-.039	1.52	.538	.018	.0177	-.0601	.10
	.20	-.035	1.50	.523	.024	.0237	-.1112	.20
	.30	-.038	1.54	.535	.031	.0214	-.1596	.30
	.40	-.050	1.57	.571	-.008	.0126	-.1901	.40
	.50	-.081	1.68	.702	-.102	-.0164	-.2014	.50
30	-.50	-.099	2.00	.732	.169	-.0027	.2224	-.50
	-.40	-.056	1.85	.648	.147	-.0212	.1902	-.40
	-.30	-.041	1.81	.610	.126	-.0297	.1594	-.30
	-.20	-.043	1.82	.607	.105	-.0296	.1221	-.20
	-.10	-.044	1.80	.614	.052	-.0261	.0733	-.10
	0.00	-.039	1.76	.625	-.011	-.0033	-.0007	0.00
	0.00	-.037	1.77	.622	-.010	-.0053	.0002	0.00
	.10	-.039	1.80	.615	-.038	.0165	-.0719	.10
	.20	-.034	1.78	.607	-.108	.0211	-.1162	.20
	.30	-.037	1.79	.623	-.171	.0272	-.1635	.30
	.40	-.051	1.83	.655	-.238	.0168	-.1937	.40
	.50	-.100	1.99	.754	-.296	-.0008	-.2318	.50
35	-.50	-.131	2.27	.710	.309	-.0086	.2923	-.50
	-.40	-.082	2.08	.678	.294	-.0231	.2413	-.40
	-.30	-.066	2.01	.684	.266	-.0277	.1861	-.30
	-.20	-.064	2.04	.700	.239	-.0163	.1321	-.20
	-.10	-.063	2.05	.715	.166	-.0153	.0775	-.10
	0.00	-.049	2.01	.755	.002	-.0065	-.0027	0.00
	0.00	-.050	2.03	.759	.008	-.0083	.0019	0.00
	.10	-.064	2.04	.719	-.133	.0033	-.0709	.10
	.20	-.057	2.01	.709	-.227	.0109	-.1255	.20
	.30	-.060	1.98	.701	-.311	.0253	-.1906	.30
	.40	-.073	2.07	.696	-.398	.0158	-.2437	.40
	.50	-.126	2.22	.718	-.477	.0033	-.3061	.50

X-29A ROTARY BALANCE DATA

9B2WCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
40	-.50	-.147	2.46	.748	.560	-.0196	.3844	-.50
	-.40	-.092	2.26	.754	.495	-.0273	.3098	-.40
	-.30	-.076	2.21	.766	.408	-.0286	.2288	-.30
	-.20	-.071	2.28	.777	.313	-.0070	.1528	-.20
	-.10	-.070	2.21	.793	.232	-.0077	.0931	-.10
	0.00	-.075	2.21	.821	.007	-.0127	.0024	0.00
	0.00	-.076	2.24	.827	-.016	-.0131	.0020	0.00
	.10	-.077	2.27	.807	-.222	.0006	-.0822	.10
	.20	-.073	2.26	.792	-.320	.0086	-.1524	.20
	.30	-.070	2.15	.788	-.405	.0251	-.2209	.30
	.40	-.093	2.23	.772	-.472	.0200	-.3011	.40
	.50	-.147	2.39	.795	-.489	.0060	-.3900	.50
45	-.50	-.179	2.63	.790	.574	-.0132	.4277	-.50
	-.40	-.119	2.44	.789	.570	-.0098	.3355	-.40
	-.30	-.084	2.37	.773	.485	-.0152	.2593	-.30
	-.20	-.076	2.38	.837	.342	-.0169	.1856	-.20
	-.10	-.067	2.32	.798	.224	.0201	.0999	-.10
	0.00	-.063	2.37	.865	.003	-.0011	.0001	0.00
	0.00	-.061	2.35	.863	-.006	-.0139	.0075	0.00
	.10	-.070	2.38	.820	-.197	-.0265	-.0834	.10
	.20	-.070	2.36	.856	-.355	.0124	-.1805	.20
	.30	-.080	2.32	.797	-.481	.0073	-.2509	.30
	.40	-.115	2.44	.809	-.585	.0034	-.3344	.40
	.50	-.188	2.69	.883	-.550	.0034	-.4130	.50
50	-.50	-.212	2.81	.724	.526	-.0247	.3976	-.50
	-.40	-.145	2.56	.747	.554	-.0051	.3437	-.40
	-.30	-.118	2.54	.764	.489	.0015	.2892	-.30
	-.20	-.104	2.47	.809	.363	-.0066	.2086	-.20
	-.10	-.093	2.43	.808	.168	.0170	.1070	-.10
	0.00	-.087	2.39	.841	-.026	.0077	-.0070	0.00
	0.00	-.090	2.40	.846	-.024	.0024	.0003	0.00
	.10	-.087	2.41	.820	-.176	-.0084	-.0989	.10
	.20	-.093	2.42	.790	-.350	-.0022	-.1966	.20
	.30	-.109	2.50	.786	-.465	-.0133	-.2786	.30
	.40	-.136	2.56	.767	-.484	.0027	-.3223	.40
	.50	-.203	2.84	.753	-.482	.0179	-.3975	.50
55	-.50	-.181	2.87	.492	.332	-.0224	.3030	-.50
	-.40	-.148	2.66	.623	.416	-.0056	.2980	-.40
	-.30	-.131	2.65	.725	.445	.0107	.3165	-.30
	-.20	-.111	2.54	.707	.329	.0094	.2477	-.20
	-.10	-.101	2.43	.705	.169	.0002	.1277	-.10
	0.00	-.095	2.42	.788	.002	-.0022	.0122	0.00
	0.00	-.094	2.43	.779	-.003	.0021	.0108	0.00
	.10	-.102	2.42	.686	-.163	-.0046	-.1095	.10
	.20	-.109	2.51	.714	-.304	-.0118	-.2332	.20
	.30	-.120	2.60	.695	-.301	-.0107	-.2462	.30
	.40	-.131	2.65	.583	-.322	.0055	-.2551	.40
	.50	-.178	2.90	.515	-.230	.0194	-.2904	.50

X-29A ROTARY BALANCE DATA

9B2WCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
60	-.50	-.159	3.02	.454	.280	-.0229	.2905	-.50
	-.40	-.143	2.76	.473	.261	-.0117	.2092	-.40
	-.30	-.162	2.62	.549	.286	.0013	.2091	-.30
	-.20	-.166	2.56	.574	.221	.0039	.1967	-.20
	-.10	-.170	2.56	.611	.144	.0009	.1277	-.10
	0.00	-.123	2.52	.696	-.009	.0044	.0183	0.00
	0.00	-.130	2.52	.698	.002	.0071	.0191	0.00
	.10	-.174	2.53	.605	-.131	-.0045	-.1102	.10
	.20	-.167	2.57	.593	-.215	-.0069	-.1793	.20
	.30	-.149	2.63	.543	-.230	-.0009	-.1818	.30
	.40	-.140	2.78	.497	-.184	.0094	-.1927	.40
	.50	-.160	3.03	.507	-.176	.0241	-.2834	.50
65	-.50	-.190	3.24	.417	.259	-.0285	.3066	-.50
	-.40	-.159	2.98	.382	.230	-.0169	.2017	-.40
	-.30	-.144	2.72	.376	.206	-.0064	.1434	-.30
	-.20	-.161	2.64	.464	.184	.0010	.1565	-.20
	-.10	-.165	2.57	.489	.128	-.0017	.1167	-.10
	0.00	-.152	2.55	.611	-.006	.0021	.0199	0.00
	0.00	-.154	2.55	.615	-.001	.0003	.0221	0.00
	.10	-.167	2.57	.495	-.146	-.0019	-.0965	.10
	.20	-.157	2.57	.438	-.201	-.0012	-.1280	.20
	.30	-.141	2.69	.381	-.189	.0061	-.1338	.30
	.40	-.151	2.95	.390	-.171	.0175	-.1940	.40
	.50	-.187	3.18	.480	-.144	.0321	-.2957	.50
70	-.50	-.182	3.31	.364	.228	-.0393	.3220	-.50
	-.40	-.167	3.08	.300	.181	-.0287	.2079	-.40
	-.30	-.156	2.83	.260	.172	-.0159	.1305	-.30
	-.20	-.159	2.63	.251	.149	-.0063	.0853	-.20
	-.10	-.178	2.59	.344	.119	-.0013	.0808	-.10
	0.00	-.182	2.55	.515	-.018	-.0003	.0080	0.00
	0.00	-.176	2.55	.517	-.034	-.0012	.0140	0.00
	.10	-.168	2.57	.336	-.138	-.0001	-.0576	.10
	.20	-.143	2.58	.210	-.155	.0074	-.0729	.20
	.30	-.147	2.79	.276	-.162	.0143	-.1192	.30
	.40	-.155	3.02	.316	-.148	.0296	-.2017	.40
	.50	-.178	3.29	.386	-.149	.0464	-.3154	.50
75	-.50	-.222	3.39	.224	.251	-.0585	.3484	-.50
	-.40	-.187	3.12	.194	.200	-.0402	.2172	-.40
	-.30	-.160	2.87	.162	.187	-.0236	.1281	-.30
	-.20	-.132	2.65	.104	.136	-.0165	.0765	-.20
	-.10	-.130	2.58	.151	.116	-.0072	.0222	-.10
	0.00	-.152	2.54	.291	-.023	-.0001	.0138	0.00
	0.00	-.134	2.56	.306	-.033	.0006	.0138	0.00
	.10	-.118	2.55	.101	-.130	.0065	-.0100	.10
	.20	-.123	2.65	.106	-.158	.0145	-.0738	.20
	.30	-.143	2.88	.176	-.192	.0232	-.1214	.30
	.40	-.171	3.11	.206	-.144	.0412	-.2124	.40
	.50	-.211	3.35	.242	-.137	.0592	-.3384	.50

X-29A ROTARY BALANCE DATA

9B2WCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
80	-.50	-.270	3.36	.039	.211	-.0684	.3729	-.50
	-.40	-.202	3.13	.041	.228	-.0537	.2372	-.40
	-.30	-.155	2.87	.067	.207	-.0331	.1397	-.30
	-.20	-.133	2.68	.018	.146	-.0218	.0841	-.20
	-.10	-.133	2.58	-.011	.136	-.0108	.0215	-.10
	0.00	-.136	2.54	.077	.002	.0010	.0108	0.00
	0.00	-.131	2.54	.099	-.029	.0025	.0172	0.00
	.10	-.124	2.57	-.037	-.135	.0101	-.0261	.10
	.20	-.131	2.71	.021	-.134	.0204	-.0808	.20
	.30	-.150	2.91	.085	-.182	.0298	-.1308	.30
	.40	-.188	3.11	.084	-.146	.0489	-.2343	.40
	.50	-.243	3.35	.057	-.100	.0668	-.3691	.50
85	-.50	-.071	3.43	.190	.229	-.0803	.3748	-.50
	-.40	-.194	3.13	.106	.194	-.0582	.2467	-.40
	-.30	-.198	2.91	.068	.206	-.0398	.1439	-.30
	-.20	-.195	2.70	-.014	.143	-.0274	.0915	-.20
	-.10	-.188	2.61	-.095	.136	-.0147	.0363	-.10
	0.00	-.191	2.56	-.031	.018	-.0003	.0062	0.00
	0.00	-.205	2.51	-.044	.001	.0017	.0187	0.00
	.10	-.196	2.55	-.127	-.134	.0140	-.0407	.10
	.20	-.195	2.69	-.020	-.122	.0257	-.0837	.20
	.30	-.196	2.88	.086	-.190	.0356	-.1398	.30
	.40	-.181	3.15	.118	-.150	.0566	-.2362	.40
	.50	-.039	3.40	.230	-.080	.0789	-.3659	.50
90	-.50	-.092	3.32	-.019	.176	-.0870	.3807	-.50
	-.40	-.138	3.09	-.069	.196	-.0634	.2454	-.40
	-.30	-.194	2.86	-.080	.217	-.0437	.1583	-.30
	-.20	-.186	2.70	-.127	.173	-.0341	.1060	-.20
	-.10	-.174	2.58	-.210	.157	-.0203	.0594	-.10
	0.00	-.168	2.54	-.100	.039	-.0027	.0070	0.00
	0.00	-.169	2.55	-.113	.012	-.0005	.0214	0.00
	.10	-.163	2.52	-.235	-.093	.0154	-.0622	.10
	.20	-.182	2.67	-.131	-.093	.0282	-.0992	.20
	.30	-.204	2.82	-.067	-.156	.0388	-.1542	.30
	.40	-.162	3.10	-.035	-.095	.0592	-.2389	.40
	.50	-.096	3.37	-.007	-.070	.0874	-.3798	.50

***** X-29A ROTARY BALANCE DATA *****

9B3WCV

BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
0	-.40	.070	.18	-.020	-.040	.1484	-.0010	-.40
	-.30	.065	.14	-.037	-.024	.1103	.0035	-.30
	-.20	.065	.14	-.052	-.021	.0697	.0035	-.20
	-.10	.066	.13	-.059	.002	.0329	.0014	-.10
	0.00	.066	.13	-.070	-.004	.0001	.0013	0.00
	0.00	.065	.13	-.068	-.004	.0002	.0013	0.00
	.10	.062	.14	-.060	.002	-.0344	.0008	.10
	.20	.060	.15	-.055	-.002	-.0718	.0015	.20
	.30	.058	.14	-.044	-.009	-.1122	.0052	.30
	.40	.062	.17	-.030	-.022	-.1496	.0125	.40
5	-.40	.058	.49	.087	-.063	.1339	.0186	-.40
	-.30	.051	.48	.073	-.048	.1021	.0162	-.30
	-.20	.045	.49	.071	-.038	.0685	.0128	-.20
	-.10	.042	.49	.070	-.029	.0328	.0070	-.10
	0.00	.043	.48	.058	-.011	-.0008	.0016	0.00
	0.00	.044	.47	.061	-.011	-.0006	.0013	0.00
	.10	.040	.50	.069	.002	-.0354	-.0050	.10
	.20	.041	.50	.069	.019	-.0708	-.0085	.20
	.30	.046	.49	.072	.028	-.1049	-.0072	.30
	.40	.048	.50	.084	.048	-.1356	-.0047	.40
10	-.40	.047	.85	.214	-.122	.1044	.0428	-.40
	-.30	.046	.80	.209	-.092	.0813	.0280	-.30
	-.20	.034	.84	.220	-.059	.0599	.0185	-.20
	-.10	.021	.85	.226	-.035	.0316	.0096	-.10
	0.00	.020	.83	.218	-.013	-.0005	.0008	0.00
	0.00	.018	.84	.216	-.014	-.0004	.0012	0.00
	.10	.022	.86	.225	.022	-.0336	-.0082	.10
	.20	.034	.83	.217	.042	-.0606	-.0162	.20
	.30	.042	.80	.211	.066	-.0827	-.0240	.30
	.40	.041	.84	.212	.089	-.1079	-.0348	.40
15	-.40	.038	1.11	.249	-.182	.0621	.0742	-.40
	-.30	.034	1.11	.276	-.127	.0562	.0475	-.30
	-.20	.023	1.13	.309	-.095	.0403	.0261	-.20
	-.10	.013	1.16	.329	-.052	.0200	.0114	-.10
	0.00	.016	1.16	.324	-.012	-.0001	.0001	0.00
	0.00	.013	1.17	.321	-.011	-.0007	.0004	0.00
	.10	.013	1.17	.327	.028	-.0216	-.0107	.10
	.20	.020	1.14	.309	.069	-.0423	-.0242	.20
	.30	.027	1.12	.285	.107	-.0608	-.0435	.30
	.40	.033	1.11	.254	.150	-.0643	-.0648	.40
20	-.40	.015	1.41	.345	-.201	.0229	.1047	-.40
	-.30	.017	1.38	.353	-.180	.0107	.0774	-.30
	-.20	.015	1.42	.370	-.127	.0065	.0447	-.20
	-.10	.015	1.44	.384	-.078	.0029	.0190	-.10
	0.00	.023	1.42	.365	-.010	.0000	.0005	0.00
	0.00	.020	1.43	.359	-.003	-.0015	.0000	0.00
	.10	.012	1.45	.388	.056	-.0051	-.0182	.10
	.20	.010	1.44	.373	.097	-.0116	-.0416	.20
	.30	.011	1.42	.367	.145	-.0148	-.0702	.30
	.40	.009	1.41	.347	.170	-.0248	-.0962	.40

X-29A ROTARY BALANCE DATA

9B3WCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
25	-.40	.007	1.71	.420	-.132	-.0060	.1371	-.40
	-.30	.012	1.69	.382	-.145	-.0177	.1137	-.30
	-.20	.016	1.67	.401	-.121	-.0204	.0763	-.20
	-.10	.015	1.68	.421	-.065	-.0160	.0397	-.10
	0.00	.021	1.69	.423	-.010	-.0069	.0042	0.00
	0.00	.017	1.69	.423	-.008	-.0064	.0047	0.00
	.10	.018	1.68	.423	.033	.0139	-.0368	.10
	.20	.017	1.66	.403	.085	.0184	-.0690	.20
	.30	.013	1.67	.393	.143	.0177	-.1056	.30
	.40	.009	1.71	.433	.127	.0029	-.1235	.40
30	-.40	-.002	1.96	.443	.102	-.0119	.1440	-.40
	-.30	.003	1.95	.440	-.006	-.0228	.1158	-.30
	-.20	.004	1.95	.466	-.072	-.0232	.0792	-.20
	-.10	.007	1.92	.469	-.050	-.0162	.0373	-.10
	0.00	.016	1.91	.454	-.012	-.0024	-.0017	0.00
	0.00	.017	1.90	.454	-.011	-.0018	-.0016	0.00
	.10	.014	1.90	.461	.005	.0140	-.0347	.10
	.20	.011	1.93	.462	.039	.0218	-.0740	.20
	.30	.008	1.93	.437	.011	.0197	-.1091	.30
	.40	.003	1.96	.477	-.090	.0087	-.1261	.40
35	-.40	-.010	2.22	.388	.274	-.0141	.1810	-.40
	-.30	-.005	2.15	.450	.167	-.0161	.1177	-.30
	-.20	-.011	2.16	.526	-.031	-.0301	.0703	-.20
	-.10	-.014	2.17	.526	.005	-.0155	.0284	-.10
	0.00	-.012	2.18	.518	-.015	-.0044	-.0026	0.00
	0.00	-.012	2.18	.517	-.013	-.0044	-.0007	0.00
	.10	-.009	2.15	.510	-.033	.0114	-.0300	.10
	.20	-.007	2.13	.499	-.003	.0271	-.0681	.20
	.30	-.001	2.15	.462	-.176	.0160	-.1091	.30
	.40	-.007	2.20	.439	-.225	.0108	-.1488	.40
40	-.40	-.039	2.46	.387	.396	-.0209	.2303	-.40
	-.30	-.024	2.38	.489	.284	-.0207	.1420	-.30
	-.20	-.022	2.31	.583	.033	-.0403	.0579	-.20
	-.10	-.025	2.34	.550	.051	-.0266	.0360	-.10
	0.00	-.022	2.35	.552	.003	.0017	.0035	0.00
	0.00	-.021	2.36	.558	.007	-.0024	.0040	0.00
	.10	-.021	2.34	.547	-.080	.0181	-.0315	.10
	.20	-.014	2.27	.549	-.063	.0440	-.0585	.20
	.30	-.013	2.39	.502	-.293	.0168	-.1242	.30
	.40	-.029	2.49	.474	-.319	.0175	-.1837	.40
45	-.40	-.063	2.67	.433	.497	-.0266	.2636	-.40
	-.30	-.048	2.66	.592	.350	-.0297	.1679	-.30
	-.20	-.044	2.63	.632	.080	-.0410	.0442	-.20
	-.10	-.042	2.60	.571	.112	-.0203	.0410	-.10
	0.00	-.039	2.59	.579	.015	-.0001	.0049	0.00
	0.00	-.032	2.55	.547	-.020	.0047	.0086	0.00
	.10	-.040	2.59	.563	-.066	.0301	-.0305	.10
	.20	-.037	2.58	.603	-.082	.0381	-.0308	.20
	.30	-.040	2.64	.616	-.337	.0338	-.1664	.30
	.40	-.059	2.76	.543	-.389	.0398	-.2373	.40

X-29A ROTARY BALANCE DATA

9B3WCV

BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
50	-.40	-.087	2.77	.289	.536	-.0164	.2884	-.40
	-.30	-.076	2.81	.520	.375	-.0059	.1902	-.30
	-.20	-.068	2.78	.616	.193	-.0246	.0767	-.20
	-.10	-.066	2.69	.526	.133	.0045	.0609	-.10
	0.00	-.055	2.60	.495	.046	.0252	.0723	0.00
	0.00	-.055	2.60	.485	.028	.0261	.0709	0.00
	.10	-.058	2.64	.484	-.053	.0283	.0167	.10
	.20	-.064	2.78	.639	-.161	.0268	-.0358	.20
	.30	-.066	2.77	.542	-.320	.0070	-.1725	.30
	.40	-.084	2.92	.513	-.449	.0278	-.2567	.40
55	-.40	-.127	3.02	.067	.578	-.0561	.3552	-.40
	-.30	-.105	2.96	.468	.367	-.0030	.2111	-.30
	-.20	-.088	2.83	.531	.168	.0071	.1087	-.20
	-.10	-.085	2.72	.428	.161	.0036	.1145	-.10
	0.00	-.072	2.63	.413	.050	-.0019	.0748	0.00
	0.00	-.074	2.63	.404	.039	-.0006	.0817	0.00
	.10	-.080	2.68	.495	-.033	-.0000	.0538	.10
	.20	-.083	2.78	.534	-.173	-.0078	-.0940	.20
	.30	-.095	2.90	.506	-.302	.0001	-.1804	.30
	.40	-.117	3.04	.431	-.478	.0209	-.2964	.40
60	-.40	-.126	3.03	-.093	.518	-.0131	.3395	-.40
	-.30	-.114	2.97	.326	.291	-.0037	.1911	-.30
	-.20	-.102	2.88	.410	.139	.0046	.1184	-.20
	-.10	-.093	2.75	.330	.135	-.0000	.1241	-.10
	0.00	-.099	2.77	.506	.008	-.0042	.0581	0.00
	0.00	-.101	2.77	.521	-.003	-.0051	.0601	0.00
	.10	-.097	2.79	.488	-.092	-.0072	-.0210	.10
	.20	-.098	2.87	.423	-.149	-.0037	-.0941	.20
	.30	-.104	2.90	.350	-.265	.0014	-.1694	.30
	.40	-.119	2.97	-.047	-.455	.0141	-.3242	.40
65	-.40	-.124	2.99	-.326	.461	-.0196	.3495	-.40
	-.30	-.116	2.93	-.043	.306	-.0069	.2353	-.30
	-.20	-.120	2.92	.211	.159	.0009	.1311	-.20
	-.10	-.117	2.83	.280	.068	-.0014	.0823	-.10
	0.00	-.103	2.79	.349	-.013	-.0003	.0217	0.00
	0.00	-.112	2.80	.358	-.015	-.0016	.0262	0.00
	.10	-.113	2.83	.317	-.107	-.0018	-.0391	.10
	.20	-.109	2.85	.214	-.207	-.0000	-.1152	.20
	.30	-.106	2.89	-.032	-.321	.0093	-.2154	.30
	.40	-.112	3.01	-.292	-.391	.0233	-.3296	.40
70	-.40	-.120	3.23	-.136	.211	-.0254	.2044	-.40
	-.30	-.122	2.92	-.278	.316	-.0167	.2384	-.30
	-.20	-.117	2.86	-.007	.194	-.0048	.1368	-.20
	-.10	-.111	2.80	.068	.079	-.0023	.0681	-.10
	0.00	-.111	2.79	.179	-.016	.0011	.0127	0.00
	0.00	-.113	2.77	.149	-.024	.0001	.0140	0.00
	.10	-.106	2.78	.077	-.130	.0030	-.0446	.10
	.20	-.102	2.80	-.017	-.233	.0121	-.1092	.20
	.30	-.113	2.89	-.238	-.330	.0214	-.2163	.30
	.40	-.109	3.19	-.130	-.188	.0343	-.1988	.40

X-29A ROTARY BALANCE DATA

9B3WCV BETA= 0

ALPHA	Ωb/2V	C_A	C_N	C_m	C_Y	C_l	C_n	Ωb/2V
75	-.40	-.134	3.27	-.229	.218	-.0355	.2032	-.40
	-.30	-.131	2.93	-.439	.329	-.0264	.2324	-.30
	-.20	-.115	2.82	-.185	.199	-.0155	.1217	-.20
	-.10	-.115	2.80	-.010	.093	-.0058	.0488	-.10
	0.00	-.121	2.77	.074	-.012	-.0007	.0097	0.00
	0.00	-.118	2.77	.068	-.026	.0001	.0157	0.00
	.10	-.106	2.76	-.027	-.160	.0089	-.0197	.10
	.20	-.115	2.80	-.158	-.215	.0194	-.1093	.20
	.30	-.121	2.90	-.380	-.304	.0302	-.2058	.30
	.40	-.123	3.23	-.207	-.194	.0446	-.2041	.40
80	-.40	-.150	3.26	-.311	.220	-.0544	.2141	-.40
	-.30	-.142	3.01	-.353	.244	-.0337	.1625	-.30
	-.20	-.125	2.79	-.357	.181	-.0253	.1192	-.20
	-.10	-.119	2.74	-.209	.134	-.0138	.0309	-.10
	0.00	-.137	2.75	-.067	-.011	.0008	.0135	0.00
	0.00	-.134	2.74	-.089	-.023	.0031	.0218	0.00
	.10	-.127	2.73	-.197	-.143	.0132	-.0209	.10
	.20	-.128	2.78	-.312	-.189	.0248	-.1045	.20
	.30	-.140	2.97	-.325	-.240	.0367	-.1622	.30
	.40	-.140	3.22	-.283	-.192	.0562	-.2165	.40
85	-.40	-.136	3.21	-.378	.207	-.0617	.2191	-.40
	-.30	-.158	2.93	-.414	.240	-.0430	.1718	-.30
	-.20	-.140	2.76	-.405	.166	-.0309	.1202	-.20
	-.10	-.127	2.70	-.340	.119	-.0165	.0353	-.10
	0.00	-.143	2.68	-.194	-.013	.0010	.0167	0.00
	0.00	-.145	2.67	-.200	-.019	.0011	.0207	0.00
	.10	-.123	2.69	-.335	-.130	.0155	-.0232	.10
	.20	-.134	2.75	-.373	-.173	.0308	-.1063	.20
	.30	-.152	2.93	-.371	-.231	.0427	-.1609	.30
	.40	-.141	3.16	-.364	-.164	.0624	-.2296	.40
90	-.40	-.149	3.13	-.484	.175	-.0664	.2183	-.40
	-.30	-.175	2.85	-.513	.212	-.0477	.1826	-.30
	-.20	-.137	2.69	-.476	.139	-.0357	.1246	-.20
	-.10	-.109	2.62	-.415	.096	-.0198	.0439	-.10
	0.00	-.141	2.61	-.279	-.019	.0035	.0134	0.00
	0.00	-.139	2.61	-.258	-.029	.0030	.0207	0.00
	.10	-.104	2.62	-.402	-.098	.0191	-.0311	.10
	.20	-.127	2.70	-.427	-.152	.0364	-.1033	.20
	.30	-.166	2.85	-.460	-.230	.0489	-.1674	.30
	.40	-.128	3.10	-.456	-.199	.0713	-.2248	.40

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Topical Report

16. Abstract

The rotational aerodynamic characteristics are discussed for a 1/8-scale model of the X-29A airplane. The effects of rotation on the aerodynamics of the basic model were determined, as well as the influence of airplane components, various control deflections, and several forebody modifications. These data were measured using a rotary balance, over an angle-of-attack range of 0^{o} to 90^{o}, for clockwise and counter-clockwise rotations covering an $\Omega b/2V$ range of 0 to 0.4.

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